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NEUROSURGERY IN THE REHABILITATION OF PARAPLEGICS

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The aura of hopelessness that pervaded the outlook of the severe neurological cripple in the past has been largely dispelled by rehabilitation advances during recent years. Aphasics and hemiplegics can now be taught to talk and ambulate. Paraplegics and paralytics can be returned to states of comfortable usefulness. These major accomplishments have evolved primarily through the experience accumulated where large numbers of aphasic, hemiplegic and paraplegic patients have been collected. These centers are successful because they can integrate and focus the activities of medical and nonmedical agencies on different aspects of the same problem under the supervision of physicians who have made the study of these conditions their particular interest. The paraplegic patient, almost more than any other, requires such integrated effort. Initially, he is within the province of the neurosurgeon, who evaluates the extent of the injury and does what he can, surgically and otherwise, to facilitate the return of function where damage is not irreversible. Then follows the long and difficult period of rehabilitation during which neurosurgery contributes little, if anything. Later, however, rehabilitation may stop short of the ultimate goal for the patient because of new neurosurgical considerations. Such considerations form the basis for this discussion.

Neurosurgical procedures for consideration at this advanced stage of rehabilitation can be discussed under two headings according to whether an effort is being made to foster return of neural pathways or to destroy such pathways because they conduct impulses deleterious to functional recovery of the individual as a whole. The experiences of such procedures on paraplegics at Birmingham Veterans Administration Hospital, over a period of two years, will serve to indicate the relative frequency with which we have found these operations to be necessary and to indicate the results obtained.

RETURN OF NEURAL PATHWAYS

Delayed exploration of the site of injury is occasionally indicated to certify that all neural pathways not irreversibly traumatized have maximum opportunity for return of function. An unreduced fracture dislocation of the spine, extruded nucleus pulposus or intraspinal hematoma might be corrected, even, possibly, after some months, to the considerable benefit of the patient. Undiagnosed tumors, of course, must be removed. Occasionally, it may be desirable to divide the gross adhesions of a chronic arachnoiditis, particularly when subarachnoid block is present.

In discussion of late laminectomy one must take into consideration the status of the spinal cord before operation. When loss of function is sudden and severe, as in injury, operation must be performed immediately. If loss of function is slowly progressive, as it is in the presence of spinal cord tumor or even, rarely, after trauma, considerably more return of function can be hoped for with late laminectomy.

Our experience with late laminectomy in patients with traumatic paraplegia has not been encouraging from the standpoint of return of spinal cord function. Sixteen such operations have been made without a single observable instance of definite improvement of activity mediated by the spinal cord. There are considerations, however, which make exploration even under such adverse circumstances desirable. Rarely, improvement can occur, particularly when operation is done within weeks or months after injury. Even when the chance of improvement in spinal cord function is remote, release of pressure on nerve roots at the site of injury may eliminate severe local pain or permit return of muscle groups that markedly enhance the patient's sphere of activity.

CASE 1.—A 23 year old man became completely tetraplegic with a level at the fifth cervical vertebra after a diving accident. Laminectomy was performed three months after injury. Subsequently, the patient regained use of his left biceps and triceps and of the right triceps, a recovery that expanded his rehabilitation potentialities immensely.

There are hidden values over and above the admittedly small return from late laminectomy, which frequently make the procedure desirable. The patients accept their condition better after direct verification of the status of the cord has been established. They stop hoping for

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a spontaneous miracle and begin to put more personal effort into rehabilitation. The result is that the patient develops his retained faculties and again assumes his position in society. It is our policy, therefore, to offer late laminectomy to certain patients who have not had previous exploration and who have a spinal subarachnoid block, no contraindications to surgery and a static rehabilitation status. More recent injuries usually receive more favorable consideration, but exploration has been made as late as five years after injury, whenever there was possibility of gain, however slight.

DESTRUCTION OF NEURAL PATHWAYS

The situation in paraplegia frequently belies the adage that "a little function is better than none." When the spinal cord is completely or partially severed, controling impulses from higher centers are disturbed, frequently leaving the patient with untenable reflex or static mechanisms that, in themselves, not only serve no useful purpose but also seriously detract from the rehabilitation goal. The commonest symptoms of this nature that require attention are spasm, pain and autonomic instability.

Spasticity.—Reflex or persistent spasticity can be so severe that the patient not only becomes bedridden but also cannot be treated for bed sores, spastic bladder, contractures and other resulting conditions that, in themselves, can be handled relatively easily. Frequently this spasticity can be alleviated by various nonsurgical measures that should always be tried first. When the condition is intractable, however, surgical interruption of pathways carrying these undesirable impulses should be accomplished. Such interruption can be carried out best at the level of the peripheral nerve or nerve roots.

For persistent spasm of the lower extremities in adduction and flexion, a modified Stoffel operation (obturator neurectomy) can be done. It has been found necessary to do adductor myotomy, also, in addition to the neurectomy, because of secondary fibrotic contracture of the involved muscles.

Case 2.—A 27 year old man with von Recklinghausen's disease developed a spastic tetraplegia as the result of a cervical neurofibroma with associated arachnoiditis. His condition was unrelieved by two local operations, and he was confined to bed because of the spastic position of his legs. An obturator neurectomy and adductor myotomy were done, after which the patient could ambulate in a wheel chair. It was then possible to institute rehabilitation procedures and to expand his level of social contact to the point at which existence then became tenable for him.

Procedures more generally satisfactory in our experience are those directed against the nerves or roots within the spinal canal. The simplest of these procedures is the injection of 5 to 15 cc. of absolute alcohol into the lumbar cistern, as advocated by Sheldon and Bors. When there is complete paralysis of the pelvis and the lower extremities, rehabilitation procedures can be started. The release from spasm may not be permanent owing to regeneration of peripheral nerves, but the injection can be repeated. During the past two years, 18 patients have received alcohol injection. All injections were successful in that spasticity was relieved. All patients were advised before injection that potency, if it had been retained, would now be lost.

Case 3.—A 44 year old man suffered a clinically incomplete but functionally complete paraplegia as a result of a fracture at the third dorsal vertebra level sustained in an automobile accident. Sensation was partially retained, but motion was lost below this level, and the patient developed severe spasticity of his legs. He left the hospital against advice, in 1949, for manipulative treatment elsewhere but returned a few months later markedly debilitated, a litter case, with large decubitus ulcers in both trochanteric areas and an infected, spastic bladder. His legs were very spastic, being drawn up on his abdomen so that he had to lie on his side. Treatment was impossible in such circumstances. Fifteen cubic centimeters of absolute alcohol were injected into the lumbar cistern at the level of the fourth lumbar vertebra, and the lower extremities immediately became flaccid. It was then possible to build him up, treat his bed sores and bladder and to reinstitute rehabilitation.

When the spinal cord lesion is incomplete, it may be advisable to preserve sensation in patients with excessive spasticity. Anterior rhizotomy is the procedure of choice in these cases. Two patients have received this operation with satisfactory results for both. In one patient an anterior and posterior rhizotomy was necessary because subarachnoid block due to adhesions made alcohol injection impossible.

Pain.—The mechanism whereby paraplegic patients perceive pain in their paralytic extremities is not known. The discomfort closely resembles the phantom pain reported by amputees. Patients with such pains, however, are seriously handicapped and quite refractory to rehabilitation procedures. Bilateral section of the anterolateral column (spinothalamic tracts) in the thoracic spinal cord eliminates this pain in most cases. Seventeen such operations have been done with satisfactory results in all cases. The level of hypalgesia obtained must be adequate (at least to the level of the tenth dorsal vertebra) or failure will result. We have had to reoperate on two patients (one twice) before relief was accomplished. There were no complications following the procedures.

Case 4.—A 30 year old man became paraplegic after injury at the level of the second lumbar vertebra by a shell fragment. Rehabilitation was never satisfactory because the patient complained of pain in both legs. He was admitted to the hospital three years later, where he made no effort to enter into the usual activities of rehabilitation, apparently being confined by the discomfort. A chordotomy was done two years later after which complete relief of pain was reported. The patient was subsequently discharged from the hospital and now indicates that he leads a normal, comfortable existence.

Abnormal Autonomic Reflexes.—Occasionally, patients with high thoracic or cervical lesions will manifest severe elevations of blood pressure associated with profuse diaphoresis, headaches, and, infrequently, cerebrovascular accidents. This reflex appears to be associated on the afferent side with bladder disorders and can be quite incapacitating or even dangerous if not checked. Posterior rhizotomy to the tenth dorsal vertebra will relieve the condition. Two such procedures were followed with satisfactory results.

Case 5.—After a 30 year old man was wounded in the neck, he had a clinically complete spinal cord transection at the eighth cervical vertebra. Soon after injury, he had an exploratory laminectomy and a suprapubic cystotomy. Subsequently, he was sufficiently rehabilitated to be discharged from the hospital as a wheel chair patient able to maintain reasonable self care. During his convalescence, however, he developed episodes of severe headache, sweating and chills when

his catheter became plugged or when it was changed at weekly intervals. These episodes were so severe that it was necessary for him to be under constant medical supervision. He reentered the hospital three years later, when it was found that his blood pressure became elevated to 220/115 during these episodes and that, following the attack, the patient would be confined to bed for 24 hours or more. For this reason, a posterior rhizotomy was done from the tenth dorsal vertebra, caudad, two years later. Subsequently, the attacks were completely eliminated and the patient was able to expand his activities considerably.

Other Procedures.—Pudendal neurectomy has been described by Bors for use in certain instances when bladder function is inadequate because of spastic urinary sphincters. He has done pudendal neurectomy in 11 cases, with excellent results. The patients are able to void on strain or pressure and the bladder resumes balance compatible with good function.

Case 6.—A 27 year old man was struck in the back by shrapnel and immediately became paraplegic below the tenth dorsal vertebra. Rehabilitation progressed satisfactorily until he developed frequent bouts of urinary infection and was found to have a large residual that resection did not relieve. A bilateral pudendal neurectomy was done five years later. Satisfactory bladder evacuation resulted, and the patient was discharged to return to school after two months. He has not had recurrence of urinary difficulties since.

COMMENT

Patients who are candidates for these operative procedures are selected at regular paraplegic-neurosurgical conferences held once a week. These conferences provide close contact for the neurosurgeon not only with the patients but also with the paraplegia staff, and decisions regarding rehabilitation procedures of mutual concern are tremendously facilitated by this means. The problems and failures of neurosurgical intervention in this field would multiply significantly if the impressions of the paraplegia and rehabilitation personnel, achieved only by constant observation of the patients, were not available to the surgeon.

During the two year period covered by this review, approximately 500 patients have been studied and treated by the paraplegia service at the Veterans Administration Hospital of Van Nuys. Of these, 77 required neurosurgical operation during convalescence because of a static or regressive rehabilitation status due to one or more of the conditions enumerated above. It is concluded, therefore, that at least one out of every five or six paraplegic patients requires intervention of this nature and that the results of these procedures in carefully selected cases amply justifies their use.

SUMMARY

Neurosurgical procedures applicable to the rehabilitation of paraplegic patients are described and discussed.

Over a period of two years, operations performed in a total of 76 patients were late laminectomy, 16; subarachnoid alcohol injection, 18; rhizotomy, 4; neurectomy, 21, and chordotomy, 17. There were no fatalities.

UROLOGICAL ASPECTS OF REHABILITATION IN SPINAL CORD INJURIES

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The goal of rehabilitation of the paraplegic patient is threefold: medical, physical and vocational-industrial. The urological part of the medical rehabilitation and physical rehabilitation must start as a synchronized effort immediately after the injury.

In World War I only 20 per cent of the spinal cord casualties reached the United States, while 80 per cent died overseas. This ratio was dramatically reversed in World War II, with a survival rate of 80 to 88 per cent of the returning soldiers.[1] Table 1 illustrates the high mortality from genitourinary causes in World War I as contrasted with the low incidence of genitourinary deaths in World War II. This progress must be attributed to the improved understanding of the pathophysiology of the neurogenic bladder and its associated complications and to the advent of sulfonamide drugs and antibiotics.

BLADDER PHYSIOLOGY

The function of the bladder consists in storage and elimination. Elimination starts when the intravesical pressure surpasses the threshold to which the bladder muscle stretches and consists in a coordinated or balanced contraction of the forces of expulsion and relaxation of the forces of retention, culminating in complete emptying of the contents of the normal bladder. This balance is disturbed in the neurogenic bladder at some time or other, resulting in incomplete emptying and can be expressed as a percentage of the ratio residual capacity. The forces of explusion consist of the smooth detrusor urinae muscle (innervated by the parasympathetic, nervi erigentes or pelvic nerves from the second to the fourth sacral) the striated abdominal muscles (from the fifth to the twelfth thoracic nerves) and the diaphragm (phrenic nerve, from the third to the fifth cervical nerves). The forces of retention consist of the smooth muscles of the vesical neck (sympathetic hypogastric nerves from the first to the second lumbar) and the striated muscles of the pelvic floor (somatic pudendal nerves from the second to fourth sacral), which intertwine in part. The spinal

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Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

1. (*a*) Thompson-Walker, J., quoted by Prather, G. C.: Urological Aspects of Spinal Cord Injuries, Springfield, Illinois, Charles C Thomas, Publisher, 1949. (*b*) Vellacott, P. N., and Webb-Johnson, A. E., quoted by Prather, G. C.: Urological Aspects of Spinal Cord Injuries, Springfield, Ill., Charles C Thomas, Publisher, 1949. (*c*) Raines, S. L., quoted by Prather, G. C.: Urological Aspects of Spinal Cord Injuries, Springfield, Ill., Charles C Thomas, Publisher, 1949. (*d*) Petroff, B. P., quoted by Prather, G. C.: Urological Aspects of Spinal Cord Injuries, Springfield, Ill., Charles C Thomas, Publisher, 1949. (*e*) Prather, G. C.: Spinal Cord Injuries: Care of the Bladder, J. Urol. 57: 15, 1947.

autonomic facilitative centers of micturition are situated at the same sacral levels at which the somatic lower motor neurons of inhibition originate. Neurogenic bladders resulting from lesions above the conus differ functionally from those with lesions at or below the conus.

CLASSIFICATION

Based upon the term of balance and the involvement of the somatic neurons, a simple classification offers itself [1] that is reflected in table 2. Whereas micturition occurs reflexly in the more ideal situation following upper motor neuron lesion, it is initiated by strain in a case of lower motor neuron lesion. Physical rehabilitation must be directed in these latter cases toward early retraining of the abdominal and diaphragmatic musculature. However, the abdominal pressure will even precipitate the reflex voiding contraction of the detrusor urinae in some patients with upper motor neuron lesions.

EXAMINATION

A complete examination,[2] necessary for proper classification, consists of the neurological part, i. e., determination of the level and extent of lesion and of the activity of the conus by testing the bulbocavernosus and anal reflex, and the urologic part, i.e., cystoscopy, urography, sphincterometry, cystometry and determination of balance. All these examinations must be done. No one of them is adequate of itself. The results determine the future management.

ROUTINE MANAGEMENT

Many contributions [3] of the past decade have enhanced our knowledge of the traumatic cord bladder and its management. The following routine has been accepted for peacetime injuries: prevention of retention by introduction of a Foley bag catheter no. 16 to 18. Cystostomy is rarely indicated, either by organic urethral obstruction or by nursing problems in quadriplegics. Tidal irrigation is started with saline or boric acid solution or with solution M [4] in the absence of vesicoureteral reflux, as determined by cystography. Constant surveillance of bladder function by urologic examinations at bimonthly intervals is necessary, and Munro's bladder training is applied at the first signs of recovery of tone.

If balanced bladder function fails to return within three to six months, the causes of failure must be analyzed and corrected. Severe infection must be treated. Increased physical activity and ambulation are encouraged. The further management of dysfunction depends on the classification. In patients with upper motor neuron lesions and conus activity, pudendal nerve anesthesia,[5] pudendal neurectomy, transurethral resection or a combination of these methods are indicated. Patients with lower motor neuron lesions and inactivity of the conus are best suited for transurethral resection.

PUDENDAL NERVE OPERATIONS

The rationale of pudendal operations is based upon the knowledge of the intertwining smooth and striated muscle fibers at the vesical neck [6] and upon the dual innervation of the vesical neck by the presacral nerve [7] and the pudendal nerve.[8a] Experience with pudendal nerve anesthesia is presented in table 3. Permanent restoration of bladder function was achieved in 44 per cent of 107 traumatic, but in only 8.7 per cent of 23 patients with nontraumatic, cord lesions. The bladder neck opened in 44.8 per cent of the patients having traumatic lesions, but only in 21.7 per cent of those having nontraumatic lesions. The reason for this different response is not clear, but the incompleteness of nontraumatic lesions may be responsible. Temporary restoration of bladder balance was achieved in 65.2 per cent of the patients with nontraumatic lesions. A combination of small transurethral resections with subsequent pudendal blocks was equally beneficial in the majority of the small number of patients in either classification. Those who respond temporarily to repeated pudendal nerve anesthesia can be subjected successfully to pudendal neurectomy.[8] Experience thus demonstrates that neurogenic vesical dysfunction of long standing can be successfully attacked through the somatic innervation of the pelvic floor, which plays an important part in micturition.[9]

TABLE 1.—*Mortality from G.U. Causes*

Author	No. of Patients	Period of Observation	No. of Deaths
World War I			
Thompson-Walker [1a]	..	2 mo.	47%
Vellacott and Webb-Johnson [1b]	..	1 mo.	10%
World War II			
Raines [1c]	100	Several months	0 (0%)
Petroff [1d]	70	1 yr. and more	1 (1.4%)
Prather [1e]	69	1½ yr.	1 (1.45%)
V. A. Hospital, Van Nuys, Calif.	623	4 yr.	6 (0.97%)

OTHER NEURECTOMIES

Other neurectomies are of more historical and theoretical interest: presacral neurectomy,[7] resection of the anterior roots of the third sacral nerve [10] or denervation

2. Bors, E.: Spinal Cord Injuries, United States Veterans Admin. Tech. Bull. TB10-503, Dec. 15, 1948.

3. These bibliographic references are omitted from THE JOURNAL because of lack of space but are included in the author's reprints.

4. Solution "M" has the following constituents: citric acid monohydrate, 32.25 Gm.; sodium carbonate, 8.84 Gm.; anhydrous magnesium oxide, 3.84 Gm., and sterile distilled water to make 1,000 cc. It differs from solution "G" in that it contains 8.84 Gm. of sodium carbonate instead of 4.37 Gm. of sodium bicarbonate. It is less irritating, less solvent and less acid. It is used in dissolving stones in the bladder or renal pelvis by continuous irrigation.

5. (*a*) Bors, E.: Presented before the Conference on Transverse Myelitis, Hammond General Hospital, Ninth Service Command, Army Service Forces, United States War Department, Modesto, Calif., June 24-25, 1945. (*b*) Huggins, C.; Walker, A. E., and Noonan, W. J.: Sympathetic and Pudendal Neurectomy for Vesical Atony, J. Urol. **41**: 696, 1939. (*c*) Emmett and others.[2j]

6. (*a*) Wesson, M. B.: Anatomical, Embryological, Physiological Studies of the Trigone and Neck of the Bladder, J. Urol. **4**: 279, 1920. (*b*) Young, H. H., and Wesson, M. B.: The Anatomy and Surgery of the Trigone, Arch. Surg. **3**: 1, 1921. (*c*) McCrea, E. D.: The Musculature of the Bladder, Proc. Roy. Soc. Med. (Sect. Urol.) **19**: 35, 1926.

7. Learmonth, J. R.: A Contribution to the Neurophysiology of the Urinary Bladder in Man, Brain **54**: 147, 1931; Neurosurgery in the Treatment of Diseases in the Urinary Bladder: III. The Treatment of Certain Types of Vesical Paralysis, J. Urol. **26**: 229, 1931.

8. Bors, E.: The Action of the Pudendal Nerve on the Vesical Neck and Its Significance for the Restoration of Balance of Bladder Function in Spinal Cord Injuries, read before the San Francisco Neurological Society and the Southern California Neurosurgical Society, Pebble Beach, Calif., Feb. 9-11, 1950. (*b*) Nesbit, R. M.: Personal communication to the author; Higgins and others.[5b]

9. Mueliner, S. R., and Fleischner, F. G.: Normal and Abnormal Micturition: A Study of Bladder Behavior by Means of the Fluoroscope, J. Urol. **61**: 233, 1947.

10. Hoen, T. I., in discussion on The Urological Problem, presented before the Conference on Spinal Cord Injuries, Second Service Command, Army Service Forces, War Department, October 20, 1945.

of the bladder by the cutting of the anterior and posterior roots of the second, third and fourth sacral nerve.[11] The objective of the latter procedure can be attained more simply by a subarachnoid alcohol block.

SUBARACHNOID ALCOHOL BLOCK

The subarachnoid injection of absolute alcohol [12] was devised to abolish skeletal spasticity; it has been efficient, also, in supressing pathological autonomic reflexes from distention of the bladder [13] in some cases.[3e] Table 4 demonstrates that 67.4 per cent of 43 patients with traumatic cord lesions regained good bladder function after there was acute conversion of an upper to a lower motor neuron lesion by the alcohol injection; of these, 18.6 per cent required additional transurethral resections. If the six patients who remained on intraurethral catheter drainage had consented to transurethral resection, the percentage of good bladder function could have been raised still more. Some of the cystostomies were left in quadriplegic patients for nursing care. Spinal anesthesia prior to the alcohol injection has aided in the correct prognosis of future bladder function in more than two thirds of the cases. If the vesical neck does not open during spinal anesthesia, a structural obstruction is present that will necessitate transurethral resection.

TRANSURETHRAL RESECTION

Transurethral resection of the vesical neck is an efficient method and popular among urologists. Table 5 presents a survey of its use and shows that it was applied in from 0.8 per cent to 57.4 per cent of the cases. Large surveys from Veterans Administration Hospitals demonstrate that the method was used in from 11.4 per cent to 20.4 per cent of the cases. Among the 623 cases of our own series, 71 patients (11.4 per cent) were treated by transurethral resection (table 6). Resection was necessary somewhat more frequently in wartime injuries (13 per cent) than in peacetime injuries (9.3 per cent); this may be the result of the prompt care and lowered rate of complicating factors, in peacetime, such as decubitus ulcers, severe urinary infections and cystostomies. The over-all percentage of good results of transurethral resections was high (95.8 per cent), thanks to auxiliary methods of pudendal anesthesia, pudendal neurectomy and alcohol block, all of which contributed 32.3 per cent to the success. Resection is efficacious in upper and lower motor neuron lesions. A so-called late resection was done on 51 patients (71.8 per cent), whose bladders recuperated and retained a good function for a period of four months to seven years, after which the function retrogressed. This demonstrates the instability of the function of the cord bladder, known to be upset by any intercurrent complication. Early and late hemorrhages are frequent complications of transurethral resection. Occasionally, the operation has to be done in several stages. Resection of the entire internal vesical orifice extending to the external sphincter has been recommended, and even partial resection of the external sphincter has been done.[3b] My associates at the hospital and I confined our resections to little more than tenotomies of the posterior lip and lateral folds, removing small amounts of tissue, inasmuch as the prostate is rather atrophic in the majority of patients with spinal cord injury. Resection is indicated when the conservative methods fail. Early resection, within the first three to four months after injury, was done,[3f,i] though it may have been avoidable in some of the cases.

TABLE 2.—*Classification Chart*

Above Conus (Second to Fourth Sacral Vertebra) Somatic Upper Motor Neuron Lesion			
Complete		Incomplete	
Balanced	Imbalanced	Balanced	Imbalanced
Residual: 0-20% Capacity: 300 cc. Micturition: 1. Desire: absent 2. Initiation: reflex, spontaneous or conditioned 3. Inhibition: none or paradoxical Synonyms: 1. Automatic Bladder 2. Neurogenic Reflex Bladder 3. Normal Cord Bladder	Residual: 20% — 1. Flaccid (Atonic-Munro) Capacity 400 cc. a) Initial stage b) Late regression 2. Autonomous (Munro) Capacity 150-250 cc. 3. Spastic (hypertonic, Munro) Capacity 150 cc. or less	Residual: 0-10% Capacity: 200-300 cc. Micturition: 1. Desire: present 2. Initiation: precipitate 3. Inhibition: inadequate Synonym: 1. Uninhibited neurogenic bladder	Residual: 10% — Capacity: 200-1,000 cc. and more
At or Below Conus (Second to Fourth Sacral Vertebra) Somatic Lower Motor Neuron Lesion			
Residual: 0-10% Capacity: 400 cc. — Micturition: 1. Desire: absent 2. Initiation: strain, reflex rarely sufficient 3. Inhibition: passive Synonyms: 1. Autonomous bladder 2. Automatic bladder	Residual: 10% — Capacity: 400 cc. —	Residual: 0-10% Capacity: 300-400 cc. Micturition: 1. Desire: present 2. Initiation: strained or normal 3. Inhibition: active but inadequate	Residual: 10% — Capacity: 600 cc. — Sensation absent (tabetic & diabetic bladder)

COMPLICATIONS

Calculosis.—Infection, stasis and hypercalcinuria [14] play an important part in the development of urinary calculi and must be fought from the start. Sulfa drugs

11. Meirowsky, A. M.; Scheibert, C. D., and Hinchey, T. R.: Studies of the Sacral Reflex Arc in Paraplegia: I. Responses of the Bladder to Surgical Elimination of Sacral Nerve Impulses by Rhizotomy, J. Neurosurg. **7**: 33, 1950; Studies of the Sacral Reflex Arc in Paraplegia: II. Different Sacral Neurotomy and Operative Method, ibid. **7**: 39, 1950.

12. Sheldon, C. H., and Bors, E.: Subarachnoid Alcohol Block in Paraplegia: Its Beneficial Effect on Mass Reflexes and Bladder Dysfunction, J. Neurosurg. **5**: 385, 1948.

13. (*a*) Guttmann, L., and Whitteridge, D.: Effects of Bladder Distention on Autonomic Mechanisms After Spinal Cord Injuries, Brain **70**: 361, 1947. (*b*) Thompson, C. E., and Witham, A. C.: Paroxysmal Hypertension in Spinal Cord Injuries, New England J. Med. **239**: 291, 1948.

14. Flocks, R. H.: "Early" Calcium Urolithiasis, J. A. M. A. **130**: 913 (April 6) 1946.

and antibiotics, change of position, elevation of the head of the bed to enhance dependent drainage, high fluid intake to keep the calcium concentration per volume low despite hypercalcinuria [15] are early preventive measures. The best prophylaxis remains early ambulation,[16] which produces bone matrix by pressure, thus allowing deposition of calcium and providing optimal drainage of the kidneys in the upright position.[17] Osteoporosis is diminished and hypercalcinuria drops with weight bearing.[16] The management of renal or ureteral calculi should be conservative during the preambulatory phase, and surgery should be delayed until the patient becomes ambulatory. Surgery may, however, become vitally indicated

TABLE 3.—*Results of Pudendal Nerve Anesthesia*

	Cases	
	No.	%
Traumatic		
Total	107	....
Bladder function restored	47	44
Bladder neck opened	48	44.8
Nontraumatic		
Total	23	....
Bladder function restored		
Permanently	2	8.7
Temporarily	15	65.2
Not at all	6	26.1
Vesical neck		
Opened	5	21.7
Unchanged	17	73.9
Closed	1	4.4

Response of Vesical Neck to Transurethral Resection in 12 Cases

Traumatic	8	Nontraumatic	4
Good response	7	Good response	3
Poor response	1	Poor response	1

TABLE 4.—*Subarachnoid Alcohol Block in 44 Cases*

Traumatic Cord Lesions: 43		Nontraumatic Cord Lesions: 1	
Good Bladder Function			
Without transurethral resection:	21 (48.8%)		
With transurethral resection:	8 (18.6%)		1
	29 (67.4%)	Total	30 (68%)
Patients on intraurethral catheter drainage			6
Cystostomies			8
		Total	44

TABLE 5.—*Use of Transurethral Resection*

Author		Total No. of Patients	No. of Resected Patients
Bumpus, Nourse and Thompson [37] (1947)		101	58 (57.4%)
Munro [20] (1948)	(soldiers)	100	9 (9.0%)
	(civilians)	252	2 (0.8%)
V. A. Hospital, Richmond, Va.[30] (1950)		280	57 (20.4%)
V. A. Hospital, Van Nuys, Calif. (1950)		623	71 (11.4%)
Bors, Canada & U. S. A.[24] (1948)		1,586	237 (14.9%)
Malament & Bunts, V. A. Hospitals,[30] U. S. A. (1950)		1,659	154 (9.3%)

even during the preambulatory period when conservative means fail to relieve urinary blockage. Bladder stones are treated by crushing or, in rare cases, by dissolution, without regard to the ambulatory or nonambulatory status of the patient. Table 7 demonstrates the incidence of renal calculi, which ranges from 10.9 per cent to 20 per cent. Munro's figure of 1.2 per cent for his series of civilian patients is exceptionally low. Vesical calculi occurred in from 15 per cent to 70 per cent, again with the exception of Munro's low civilian figure of 3.2 per cent.[3] Table 8

15. Freeman, L. W.: The Metabolism of Calcium in Patients with Spinal Cord Injuries, Ann. Surg. **129**: 177, 1949.

16. Abramson, A. S.: Bone Disturbances in Injuries to the Spinal Cord and Cauda Equina (Paraplegia): Their Prevention by Ambulation, J. Bone & Joint Surg. **30-A**: 982, 1948.

17. Bors, E.: Intravenous Urography with Consideration of Different Postures of the Body, Ztschr. Urol. **35**: 893, 1931.

analyzes 623 cases and demonstrates a lower incidence of renal calculi of 4.8 per cent in peacetime injuries as compared with 15.5 per cent wartime injuries. The reverse is true for the figures on bladder calculi, which increased from 29.0 per cent in wartime injuries to 40.8

TABLE 6.—*Transurethral Resection Performed on 71 Patients*

	Number of Cases	Patients Having Transurethral Resection
Wartime injuries	354	46 (13%)
Peacetime injuries	269	25 (9.3%)
Total	623	71 (11.4%)
Results		
Successes		68 (95.8%)
Failures		3 (4.2%)
Successful Auxiliary Methods		
Pudendal nerve anesthesia		11
Pudendal neurectomy		2
Subarachnoid alcohol block		9
Total		22 (32.3%)
Level of Lesion		
Upper motor neuron (1 failure)		50 (70.4%)
Lower motor neuron (2 failures)		21 (29.6%)
Late Transurethral Resection		
Shortest interval of good bladder function		4 mo.
Longest interval of good bladder function		7 yr.

TABLE 7.—*Incidence of Calculosis*

Author	No. of Cases	Total Per Cent	Vesical	Renal
Bumpus, Nourse and Thompson, U. S. A.[37]	101	68.7%	49.9%	18.8%
Petroff, B. P.: U. S.A., J.A.M.A. 129: 154 (Sept. 8) 1945	40	.....	70.0%	.....
	43	.....	.....	18.6%
Munro, U. S. A.[20]	100 (soldiers)	29.0%	15.0%	14.0%
	252 (civilians)	4.4%	3.2%	1.2%
V. A. Hospital, Van Nuys, Calif.	623	45.7%	34.8%	10.9%
Botterell, E. H., and Jousse, A. T.: Treat.Serv.Bull. 3: 11, 1948, Canada	178	33.7%	.....	.....
Donovan, H.: Lancet 1: 515, 1947, Great Britain	...	.....	.....	20.0%
Riches, E. W.: Brit. J. Surg. 31: 135, 1943, Great Britain	...	20.0%	.....	.....

TABLE 8.—*Calculosis*

	No. of Cases	Renal Calculi	Vesical Calculi
Wartime injuries	354	55 (15.5%)	103 (29.0%)
Peacetime injuries	269	13 (4.8%)	110 (40.8%)
Total	623	68 (10.9%)	213 (34.2%)

TABLE 9.—*Epididymitis*

	No. of Cases	Epididymitis	Intra-urethral	Suprapubic	Automatic
War	354	88 (24.8%)	57 (16.1%)	9 (2.5%)	22 (6.2%)
Peace	269	61 (22.7%)	31 (11.5%)	1 (.4%)	29 (10.8%)
Total	623	149 (23.9%)	88 (14%)	10 (1.6%)	51 (8.2%)
Penoscrotal Fistula					
War	354	11 (3.1%)	.....	.....	.....
Peace	269	32 (11.9%)	.....	.....	.....
Total	623	43 (6.9%)	.....	.....	.....
Penoscrotal Diverticulum					
	165	80 (48.4%)	.....	.....	.....

per cent in peacetime injuries. The explanation for this increase may be twofold: (1) every calcareous deposition around a Foley bag catheter was counted as calculus even if its removal was possible by simple irrigation without crushing; (2) the suprapubic catheters, used during the war, were of a larger caliber that allowed this calcareous detritus to escape without being observed.

Epididymitis.—The incidence of epididymitis was 23.9 per cent, as illustrated in table 9. For obvious reasons it is highest with intraurethral catheters (14 per cent) and lowest when the infected urine is diverted from the prostatic urethra by cystostomy (1.6 per cent). There was a 10.8 per cent increase of epididymitis with automatic bladders in peacetime as compared with the 6.2 per cent increase in wartime. This could be explained in two ways: (1) Early mobilization of the patient in peacetime exposes his gonads to earlier trauma, unnoticed by him because of absence of sensation [18]; (2) Epididymitis often occurs shortly after the intraurethral catheter is removed; its occurrence is then attributed to an automatic bladder, when the true cause was in all probability the intraurethral catheter. Frequent change of catheters, the use of penicillin KY jelly [19] as a lubricant, instruction of the patient on how to avoid trauma, and his wearing a suspensory are means of prevention.

Urethral Pathology.—Urethral fistula subsequent to periurethral abscess at the penoscrotal junction occurred in 6.9 per cent of 623 cases (table 9). Among 165 routine urethrograms, urethral diverticula were found at the same site in 48.4 per cent, varying in their size from 1 to 4 or more cm. in diameter (table 9). Both lesions probably have a common cause in a pressure ulcer that develops at the acute angle of the pendulous urethra.[20] The use of catheters of small calibers and the early restoration of bladder function are means of prevention. Among 40 patients with penoscrotal fistula, 35 per cent were healed spontaneously by conservative means, 7.5 per cent by palliative measures and 57.5 per cent by radical surgery.[21] Diverticula of small size without signs of back pressure are not attacked surgically, while large and infected sacs must be excised. Surgery ought to be delayed until an automatic bladder is present.[3v] An attempt to repair either condition without diversion of the urinary stream is justified. In the event of failure, diversion of the urinary stream is necessary. In this case, diversion of the urinary stream by perineal urethrostomy is preferred to cystostomy at the time of the second intervention.[21]

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RECONSTRUCTIVE SURGERY IN SPINAL CORD INJURIES

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Decubitus ulcers are a frequent complication of spinal cord injuries. Their prevention and cure by conservative means has been a major objective of physical medicine.

The incidence of ulcers in wartime injuries amounted to 95 per cent,[1] while in peacetime it dropped to 28 per cent.[2] Considering the short time required to produce an ulcer [3] and the importance of nursing care,[4] the difference of ulcer incidence in war and peace is not surprising. Theoretically, the incidence should drop to zero if patients with spinal cord injuries were immediately admitted to centers adequately equipped for this care.

ETIOLOGY

There are two schools of thought regarding etiology. The first, represented by Brown-Séquard (cited by Gibbon [5]) believes that pressure is the sole cause of an ulcer. This opinion is widely shared.[6] Charcot, on the other hand, favors the atrophic theory. A compromise between the two theories is proposed in Munro's [2] suggestion of a disturbance of autonomic reflexes of the skin during the period of spinal shock. However, no disturbance of circulation was observed locally,[7] nor was a difference demonstrable in the circulation of the skin above and below the lesion.[3] General factors such as anemia, hypoproteinemia, recurrent infections and exhaustion are essential for the development of an ulcer [8] to such a degree that an ulcer can be considered as one of the signs that reflect the general condition of the patient.[7] No racial difference [9] in the development of ulcers was observed in this series.

LOCALIZATION

All prominences of the body exposed to pressure are potential sites of ulcer formation. In order of frequency they are the sacrum, trochanter, ischium, heel and toe. Less frequent sites are the malleolus, iliac crest and spine, patella, head of the fibula and spine of the vertebra. Rarely, ulcers occur above the level of the cord lesion on such sites as the occiput, ear, nose or scapula.

CLASSIFICATIONS

Ulcers can be classified (1) according to the time of their appearance, (2) according to their pathology, (3) according to their clinical significance and (4) according to the bacteriological flora.

"Early" ulcers are distinguished from "late" ulcers [10] in that they appear immediately after the injury for which the patient is confined to bed. They are located on the sacrum, trochanter, knee, heel, iliac portion of the spine or the malleolus. "Late" ulcers appear several months after the injury, when the patient becomes active

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in a wheel chair; the localization is then in the ischium. However, any ulcer that appears after a sore-free interval is called a late ulcer, regardless of its precipitating cause. Ulcers of a mummified type, with an eschar-like black crust are distinguished from the gangrenous type. The former are demarcated and have a tendency to heal beneath the eschar; the latter require more surgical care. Superficial ulcers are differentiated from deep ulcers because of the clinical significance in respect to the surgical care required by the latter group. A multitude of micro-organisms has been described, most of which appear in the feces and in the urine of these patients.[11] The latter classification has not proved to be of practical value.

PREVENTION

Prevention of decubitus ulcer is its best cure.[12] Averting pressure by frequent turning of the patient,[13] the use of Stryker frames [14] and care of the skin are essential. Padding with various types of "doughnuts" and airfoam rubber mattresses [15] is an additional protective measure. Sawdust beds or vibrating beds [16] will rarely be necessary. Proper instruction to the wheel chair patient is indicated on how to relieve the ischiac tuberosities from weight bearing and how to avoid trauma [17] during the transfer to and from wheel chairs. It is self evident that the patient's general health must be kept at its best if ulcers are to be prevented.[18] Despite indoctrination of patients and repeated warnings, decubitus ulcers occur because of the lack of cooperation that is consistent with the known mental reaction of paraplegic patients.[19] Early ambulation is one important means of prevention, with corrective physical rehabilitation playing an important part in keeping the general condition of health at optimum level.

TREATMENT

This can be divided into general and local measures; the latter can further be subdivided into conservative and surgical.

The general measures consist of correction of anemia and hypoproteinemia by transfusions of blood and irradiated plasma, correction of anorexia by insulin,[20] reduction of urinary infection and reduction of spasticity. The latter is initially in the domain of physical medicine because it is accomplished by the institution of muscle fatigue by heat, hydrotherapy, electric stimulation or ambulation.

The local conservative treatment is divided according to the appearance of the ulcer. Superficial ulcers are treated by ultraviolet radiation or exposure to the sun wherever climatic conditions are favorable. The progress can be checked by Newman's "tracing device." [21] Various ointments such as cod liver oil compounds [22] or chlorophyll preparations [23] have proved helpful. Blood cell gel has been recommended.[24] Deep necrotic ulcers require débridement and moist dressings with saline solution, diluted sodium hypochlorite (modified Dakin's) solution or bacitracin. This is achieved most easily by irrigations through fixed tubes. Submersion in brine tanks of 7.5 per cent salt solution has proved beneficial. Once granulation has started, the application of various compounds such as nitrafurazone (furacin®),[25] tyrothricine,[3] bacitracin, penicillin jelly,[26] sulfa compounds [27] and sugar [28] is justified. No effort has been made in this series to direct the therapy specifically against micro-organisms; the nonspecific measures have been found practical.[29]

The surgical management consists of palliative and radical methods.

To the palliative procedures belong the skin grafts, such as pinch grafts, Thiersch grafts [30] and buried epidermis grafts.[31] The latter method was used in 250 instances during the past four years. The objective of buried grafts is twofold: They are used to provide definitive closure of small superficial ulcers and to prevent further loss of protein from the granulation tissue prior to radical surgery. This graft can be used at any site, with the exception of the ischium, where it is impractical. Its advantage over inlay grafts consists in its resistance to infection, in the unimportance of immobilization of the patient and in the economy of its use. The donor area need not exceed 6 to 8 per cent of the defective area in order to yield a sufficient number of seeds. Epithelization is complete before shrinkage of granulations occurs.[32]

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The history of radical bedsore surgery can be divided into the following epochs: (1) that of the extirpation of scars resulting from ulcers in nonparaplegic patients, in 1938 [33]; (2) that of the excision, in 1945, of an acute decubitus ulcer in a patient with a spinal cord injury [34] (this was the first attempt to disprove an earlier statement [2] that surgery is contraindicated in this condition); (3) that of plastic closure by flaps [35] and, finally, (4) that of ostectomy, in 1947 and 1948, in which it was recognized that no stable results can be achieved without eliminating the underlying focus and cause.[36]

Certain principles govern radical surgery of decubitus ulcers. There must not be excessive spasticity. The time of operation is chosen in accordance with the good general condition of the patient and the local appearance of clean granulation rather than by indication of the bacterial count.[37] Preoperatively, penicillin therapy is started 24 hours prior to intervention. Removal of the entire focus is performed, including the bursal sac, diseased osseous tissue and adjoining calcifications.[38] The choice of the skin incision rests with the discretion of the operator. Some [39] prefer rotation flaps, Y-, T- or X-shaped incisions, while in our series elliptical or S-shaped incisions were used most frequently. Electrofulguration for hemostasis was given preference, in our cases, to use of surgical gut or cotton.[5] Adequate drainage is essential. Wire is used for the button retention sutures [40] as well as for the skin sutures [41]; 28 gage stainless steel is used for the former and 32 to 36 gage steel for the latter. Occasionally, two stage procedures, e. g., at the trochanter, are indicated.

The extent of removal of bone depends upon the individual decubitus ulcer. The entire major trochanter is removed in trochanteric decubiti, provided that there is not an associated dislocation at the hip. In this case, resection of the head, neck and major trochanter of the femur is performed just above the line of the minor trochanter, which may occasionally have to be included in the resection. Removal of two thirds of the inferior ramus of the pubis, the ischial tuberosity and parts of the superior ramus of the ischium is performed in ischial ulcers. Sacral decubiti frequently necessitate the removal of the superficial layers of the sacrum and occasionally, the entire coccyx.

Postoperatively, the penicillin therapy is continued for 10 days. Blood transfusions are given as indicated. It is unnecessary to suppress bowel movements, contrary to the statements of others.[42] The first change of dressing is done on the tenth postoperative day, provided that there are no complications. The drains are shortened at the same time and, later, gradually withdrawn. Ambulation is resumed four weeks after repair of trochanteric and sacral ulcers and six weeks after removal of portions of the ischium, as described above. Mild spasticity must be controlled by immobilization through proper splinting, including casts.

RESULTS

The following results have been obtained over a four year period (April 1946 through April 1950):

A. Conservative results

(1) Surveys taken at various periods show that an average of 59.1 per cent of the total number of ulcers at various sites will heal under conservative measures.

B. Surgical Results

(1) Ninety-two individual trochanteric ulcers have been operated on 117 times. The average rate of cure is 89.4 per cent.

(2) Sixty-four individual sacral ulcers have been operated on 77 times. The average rate of cure is 93.4 per cent.

(3) Sixty-two individual ischial ulcers have been operated on 112 times, with use of a partial bone resection technique. The average rate of cure is 85 per cent.

(4) Sixty-eight individual operations removing portions of the ischium have been performed. The rate of cure is 100 per cent. Two cases required secondary superficial skin closures.

(5) The head, neck and trochanter of the femur have been resected in seven individual trochanteric ulcers complicated by dislocation of the hip. The rate of cure was 100 per cent.

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PHYSICAL TREATMENT AND REHABILITATION OF THE PARAPLEGIC PATIENT

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The use of physical agents and rehabilitation techniques is essential in the clinical management of patients with spinal cord lesions. In addition to their therapeutic effect, these agents and techniques are of diagnostic and prognostic value in the long range program of paraplegic care. Briefly, the major objectives of physical medicine and rehabilitation are to evaluate the extent of the disability and its progress under treatment; prevent, minimize or correct deformity; prevent atrophy, deconditioning and loss of mobility; improve motor function; assist in the control of decubitus ulcers and spasticity; teach ambulation, self care and activities essential in daily living and, finally, provide for maximal physical, psychosocial, educational and vocational adjustment of the individual patient.

Extensive experience in the care of the paraplegic patient, gained during and since the recent World War, has indicated the importance of early, individualized and comprehensive physical treatment. Optimal results require that such treatment be adequately supervised and directed by the physician and that it be carefully integrated into the total therapeutic regimen, which must include good medical, urologic, neuropsychiatric and orthopedic care.

PROBLEMS IN THERAPY

Evaluation.—The manual muscle test is used to determine the status of the motor system with respect to muscle strength, coordination and spasticity. It is useful in indicating the level of the lesion, areas for special care, i. e., electrical stimulation, reeducation, bracing, etc., and when done at regular intervals it aids in estimating prognosis and recovery.

The test for factors inherent in daily living [1] is of great significance in evaluating the functional capacity of the total patient and serves as a guide to his progress under treatment. The items of this test are concerned with hand, toilet, self care and traveling activities, the adequate performance of which is one of the major goals of treatment.

Newer electrodiagnostic techniques are of value in diagnosis and prognosis in selected cases, particularly of those patients with cauda equina lesions. The "square wave" is used to determine rheobase, chronaxie, strength duration curves, tetanus ratio and other important criteria of nerve-muscle function. The electromyograph can give much valuable information with regard to "motor unit" activity within individual muscles.

Joint Deformity.—This type of deformity, once developed, can significantly interrupt the therapeutic regimen by preventing adequate nursing care, bracing and ambulation, etc. Proper bed positioning and the early use of passive exercise will do much to minimize or prevent its occurrence. Proper alinement with "neutral" joint positions and daily passive motion (active whenever possible) of all joints through normal range should be instituted as soon as possible after the occurrence of the lesion. Once deformities have developed conservative measures such as passive motion and traction may not be adequate to overcome them, and more extensive orthopedic and surgical measures, including manipulation under anesthesia, wedge casts, tenotomy and capsulotomy and the like, may be required.

Deconditioning.—This process can largely be minimized by keeping normally innervated segments active and mobile. For example, if the upper extremities are not involved, active resistive exercise should be started early, aimed at keeping the shoulder girdle musculature, the triceps and the finger flexors strong, since these groups are essential to future adequate use of crutches in ambulation. General bed and, later, mat conditioning exercises are valuable.

The method of preventing of specific muscle atrophy in areas of disturbed innervation is not completely understood. It is rather generally agreed, however, that as long as some doubt exists as to the irreversible nature of the spinal cord lesion and some hope for return of voluntary function remains, electrical stimulation of flaccid muscle should be continued. Optimal factors have not been established, but, at present, it would seem desirable to use the low ranges (below 60 cycles a second) of the alternating current in daily stimulation, attempting to attain maximal "tension" development within the muscles so treated. Stimulation should not accentuate muscle imbalance or increase spasticity, if these are present.

Motor Function.—When this function starts to return, it can be improved by a graded program of reeducational exercise. It may be necessary to start with passive relaxed exercise and to progress as indicated to active assistive, active and, finally, resistive exercise. Normal motor function will also depend upon good joint motion and good vascular supply. The use of passive motion, elevation and massage will prevent venous and lymphatic stasis in the paralyzed limbs and minimize the development of edema. Heating, if used in an attempt to increase arterial blood flow to the part or to relieve pain, must be carefully supervised. Lost or impaired cutaneous sensibility makes the paraplegic susceptible to burns. Heating should preferably be mild and superficial and followed by careful inspection of the skin. Mild luminous heat or various forms of hydrotherapy are tolerated fairly well.

Decubitus Ulcers.—These are a vexing problem, especially in the patient with flaccid paraplegia, and may develop in spite of good care. Many factors must be stressed in their prevention, including adequate nursing and skin care, avoidance of prolonged pressure areas,

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Read in the Symposium on Physical Medicine and Rehabilitation for Paraplegics before the Section on Physical Medicine and Rehabilitation at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

1. Deaver, G. G., and Brown, M. E.: Physical Demands of Daily Life: An Objective Scale for Rating the Orthopedically Exceptional, New York, Institute for the Crippled & Disabled, 1945.

adequate physical "activity," with its vascular response, and adequate diet, particularly with regard to protein intake. Once decubitus ulcers have developed, physical measures may aid in their "conservation" control. These measures include "activity," mild superficial heating, i. e., luminous, infrared, or hydrotherapy, followed by local ultraviolet irradiation of the atrophic area.

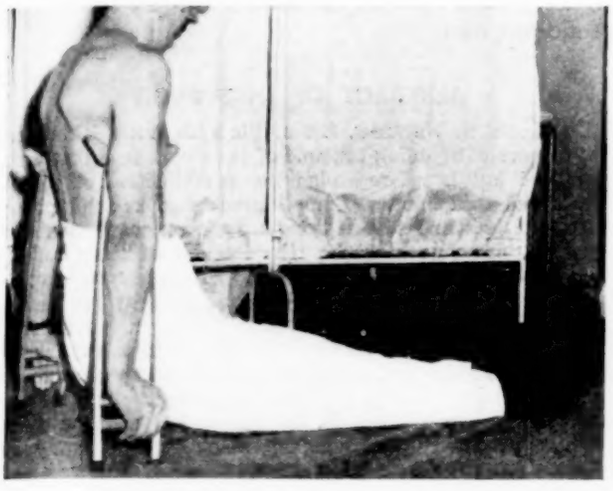

Fig. 1.—Mat exercise with "sawed-off" crutches.

Spasticity.—This may also interfere with good nursing care, bracing and ambulation, and hence its control is essential. Many techniques, medical and surgical, have been advocated in this regard. Here, again, physical measures may be of value. Lee [2] has recently advocated the use of "tetanizing" low voltage stimulation of the spastic patients, and has reported relief of "spasm" in some cases for many hours. Relaxation can be attained by special "training" or by the use of warm underwater treatment in the Hubbard tank or therapeutic pool. Exercise, whether it be passive or active, should not stimulate sudden stretching and "reflex" responses.[3] In many instances, bracing may be adequate

Fig. 2.—Patient moving himself from wheel chair to mat.

to control mild to moderate spasticity and to permit ambulation. Ambulation can be successfully achieved in the great majority of patients whose lesion level is thoracic or lower. Patients with lesions involving the cervical cord cannot be taught to walk, since muscle groups vital to crutch walking are involved. In general, the higher the lesion, the more trunk instability exists and the more difficult ambulation becomes.The ability to ambulate will vary with several factors other than the level of the lesion.

Age.—As a rule, the older the patient, the more difficult it becomes to retrain him. Elderly patients have less physical grace, less stamina and less "daring."

General Status.—Intercurrent infections (i. e., decubital and urinary), deconditioning, limitation of joint motion and contractures, and poor mental outlook will adversely affect ambulation.

Fig. 3.—Training in stair climbing.

Adequate Bracing.—Adequate bracing is essential. Most patients with a lumbar or cauda equina lesion will not require a pelvic band but may get by with two long leg braces with ischial weight seats. Thoracic lesions, especially the high ones, may necessitate a pelvic band and some, in addition, a special corset or jacket for trunk stability.

Technique.—It is generally wise to start the patient off with mat exercises and sawed-off crutches (fig. 1) to develop the axillary tactile sensations associated with crutch walking. Progress is then made to the standing

2. Lee, W. J.: Continuous Tetanizing (Low Voltage) Current for Relief of Spasm, Arch. Phys. Med., to be published.

3. Dinken, H.: War Injuries of the Vertebral Column and Spinal Cord with Special Reference to Physical Treatment, M. Clin. North America 27: 1077 (July) 1943.

position with braces and crutches. Balancing in all directions is taught before any attempt is made to walk. Self assurance is vital to the patient. He the learns ambulation, beginning on parallel bars and progressing to crutches. Patients with a lesion below the tenth dorsal vertebra may readily learn a four point alternate gait in addition to a "swinging" gait.

Training in Self Care and Daily Activities.—This training is ideally started early, while the patient is still in bed. Getting from wheelchair to mat for exercise (fig. 2) must be taught. When ambulation is possible, many items, such as stair climbing (fig. 3) and traveling, are added to the program. The goal of all such training is to achieve maximum self reliance and physical independence. Adapted equipment should be improvised to aid the severely disabled patient to learn as many of these activities as possible.

Total Rehabilitation.—Total rehabilitation of the paraplegic patient must include vocational retraining and job placement. Before this can be achieved, it is essential that early in the course of the illness the physician begin to plan for this eventual goal. Such planning must include adequate evaluation of the physical disability, social environment, psychological factors in the individual in response to his disability and educational and vocational inventories. Then with a realistic approach to the eventual residual disability, a vocational goal can be set. This goal must be consistent with the patient's abilities and disabilities and toward it all therapeutic and retraining activities must be directed.

The physician will find many resources in his own community to assist him in such adequate planning. He must actively accept the responsibility of leadership in this team effort on behalf of the paraplegic patient.

SUMMARY

The major objectives of physical medicine and rehabilitation in the care of the paraplegic patient are presented. Basic principles and techniques in attaining these objectives are briefly discussed.

Successful clinical management requires the early, individualized application of these principles and techniques, which must be integrated into the total therapeutic program.

ABSTRACT OF DISCUSSION

DR. LOUIS B. NEWMAN, Hines, Ill.: I do not think we can find a more outstanding example of teamwork than that which you have just heard regarding the rehabilitation of patients with spinal cord injuries. Complications such as genitourinary tract infections and stones, decubitus ulcers, spasm, malnutrition, etc., interfere with the rehabilitation of these patients. It is extremely important to prevent or correct these conditions. Physical medicine rehabilitation, with its program of activity, including ambulation, tends to lower the incidence of complications. The healing of decubitus ulcers, the removal of kidney and bladder stones and the clearing up of associated infections, together with obturator nerve neurectomy or even a rhizotomy, when indicated, for spasm, will help the patient along toward maximum function. Many patients with spinal cord lesions, who have been confined to bed with very little physical activity, were found to have a certain degree of hypoproteinemia with disturbed albumin-globulin ratio. Even though these patients were given large amounts of protein orally as well as parenterally, it was difficult to secure normal values. With an activity program including ambulation, it was possible to secure and maintain a normal plasma protein value with normal albumin-globulin ratio. In the study of about 700 patients with spinal cord injuries, over the past four years, at our hospital at Hines, it was observed that, with the clearing up of infections, the elimination of decubitus ulcers, and the institution of an intensive physical medicine rehabilitation program including ambulation, spasm decreased in frequency as well as in severity in most cases.

HYPOTHYROIDISM IN CHILDHOOD

ITS GENESIS

William A. Reilly, M.D., Little Rock, Ark.

Even now some writings describe hypothyroidism only in its fully developed forms, i. e., generalized myxedema, great skin dryness, retarded mentality, dwarfism, characteristic facies, marked epiphyseal retardation, constipation, somnolence and a low basal rate.

Marked mental retardation does not inevitably develop. In even the patient with congenital thyroid deficiency this retardation will not always develop if he is treated before the age of 6 to 12 months. Acquired hypothyroidism causes slow mental development; however, about 25 per cent of such patients can again attain normal mentality when treated properly. Dwarfism and epiphyseal retardation require at least one or more years to become definitely manifest. Hypothyroid infants do not usually have a high blood cholesterol level.

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These and other marked deficiencies may take years to develop in a given patient. Usually, hypothyroidism starts mildly, progresses slowly and insidiously and persists permanently if untreated. Occasionally, the progression of deficiency is steplike. There can be a remission of the deficiency, but this is rare and usually only partial and temporary. Infections usually speed up the commonly slow progression. Subtotal thyroidectomy, of course, brings on the deficiency quickly.

The genesis of hypothyroidism is governed by various combinations of the following factors: age at onset, response of the various end organs (target tissues) and the degree of the deficiency.

The effect of age at onset is an interesting factor and is illustrated well by the patient with congenital hypothyroidism. In fetal life thyroid cells appear at about the third week and acini and colloid appear at about the thirteenth or fourteenth week; iodine is then first taken up, and, presumably, thyroid substance is elaborated for the proper development of the fetus. This does not occur in

athyreosis. Nevertheless, if the mother's thyroid is normal, which is usually the case during pregnancy, her thyroid substance carries on in her fetus its needed thyroid function. Such a child, in my experience, is quite normal at birth, and not abnormal, as some articles state, in length, weight and appearance. The manifestations of hypothyroidism do not appear until several weeks to several months after birth. Indeed, the appearance may be postponed longer if the baby, while being nursed, obtains enough of the mother's milk, which usually contains her thyroid substance.

Some so-called cases of acquired hypothyroidism can be recognized as probable congenital deficiencies if one realizes the following facts: Only about one sixteenth of the amount of normal gland is necessary for the usual needs of the body. If a baby is born with a hypoplastic gland, just able to carry on normally, great enough stresses of infection at any time or the stresses of extra growth, which occur in the first six months, at about 2 years and at 5 to 7 years of age and at puberty, can well be too great; the deficiency will then first manifest itself.

The response of the end organs (target tissues) is significant. Hpyothyroidism can affect all parts of the body. However, at a given time not all tissues seem to be deficient or to react equally to a given lack. Some of these tissues, which seemed to be doing normally on a reduced ration of thyroid substance, will at a later time first show deficiency. This may not always be due to a diminished amount of thyroid substance but may well be due to decreased sensitivity of the end organs, resulting from a variety of factors. As a matter of fact, myxedema is not always evident in the early phases of the deficiency. Thus, it may be only internal, around the vocal cords or in the joints, and may not be evident externally on the face. In other patients not much anemia may develop. Rarely there is development of ascites only. Some patients show only menorrhagia as the earliest and sometimes the only manifestation for a long while. Such partial clinical pictures may remain unchanged for months and even years, or, on the other hand, the classic stigmas may suddenly blossom in many parts of the body. Some patients may show a very low basal metabolic rate but little anemia, rise in cholesterol or dwarfism. Progression of the deficiency usually is slow and steady, as stated; in acquired hypothyroidism, the decrement is usually progressive but in rare instances can be sporadic and even cyclic—that is, with periods of remission. Cyclicity can be explained by the presence of only a remnant of gland, which acquires more function temporarily. Recently I examined a boy 4 years old in whom, for 2 years, signs of hypothyroidism had been developing: some myxedema, mental and physical sluggishness, drying of the skin, a high level of cholesterol, a one year retardation of the epiphyseal age, a very low thyroid uptake of I^{131} with high urinary excretion and a definite therapeutic response to thyroid. Within several months his I^{131} uptake was normal. I am certain that at that time his thyroid function was much better than during the time when the I^{131} test showed deficiency. Here, possibly, is remission following relapse; I am not certain yet that he has had permanent remission. I have observed several patients who had temporary hypothyroidism and who then seemed to recover fully. Thus in E. J., an 8 year old girl, for six months the following sequence of events occurred: mental, then physical, sluggishness developed to the point at which school work was quite unsatisfactory; after several months, there appeared definite myxedema of the face only; in the last month, the hair dried a bit and, even though she was in the sun a good deal, vitiligo appeared. Her deficiency had not progressed enough to produce dwarfism. In several trials the basal metabolic rate was always below —20 per cent. The response to thyroid substance was entirely satisfactory—the vitiligo even darkened a bit. After nine months of continued success, therapy was stopped, but no deficiency became evident in the next year. The question arises: Will this deficiency recur later in life during the stresses of infection, puberty, pregnancy or the menopause?

The effect of the degree of thyroid substance deficiency is somewhat more readily understandable. It has already been partially explained. In athyreosis the deficiency is practically total. However, there is always the possibility that some small amount of thyroid tissue is present. My own I^{131} uptake studies indicate this. It is fairly well proved experimentally that some thyroid substance is also formed elsewhere in the body, as suggested by experiments on the thyroidectomized rat. Partial functional deficiency of the gland is occasionally not equal to the extra demand for hormones during stresses of growth or infection. After thyroidectomy, when only 2 to 4 Gm. is left (the normal gland in childhood weighs 10 to 15 Gm.) the deficiency usually is temporary, for this remnant grows probably because of thyrotropic hormone action.

Textbooks do not mention this natural development of hypothyroidism. A somewhat similar genesis occurs in diabetes, hyperthyroidism, Addison's disease, some ovarian deficiencies and in nonendocrine diseases.

SUMMARY

Some writings still describe hypothyroidism in only the fully developed state. It could and can be diagnosed earlier, and often without laboratory aids. The patients with congenital deficiency (athyreosis) usually appear normal at birth because of the help of the maternal hormone; after several weeks or several months the classic picture of hypothyroidism starts to develop. Acquired hypothyroidism usually develops slowly and insidiously for months and even for years before it is fully developed. The genesis is governed by various combinations of the following factors: age at onset, response of the various end organs (target tissues) and degree of hormonal deficiency.

ABSTRACT OF DISCUSSION

DR. HANS LISSER, San Francisco: I am in complete agreement with Dr. Reilly in all his opinions, as they are expressed in this timely paper. I use the word, "timely," because from time to time, it appears advisable to reiterate what Osler, Anders, Plummer and others have stressed during the past 50 years, that childhood and adult myxedema victims make the rounds of several physicians, as a rule, before their affliction is recognized. Fifteen years ago, I wrote, "If this be true for outright myxedema (and it is true), how infinitely more so does it hold true for the more frequent and less characteristic, or partial, forms of the disease, and for the milder grades of hypothyroidism." It was once said with regard to lues, "Know ye syphilis in all its manifestations and ramifications and all other things clinical will be added unto you." This grandiose epigram served a useful purpose, despite its exaggeration. It riveted attention on the marvelous mimicry of this kaleidoscopic infection. Why not para-

phrase it for an almost equally meritorious purpose? "Learn ye well all the conspicuous peculiarities but also the capricious vagaries and hidden hints of thyroid failings, and much misery will be spared your patients and much satisfaction added unto you," especially when a simple, potent and inexpensive remedy is at hand.

DR. A. WILMOT JACOBSEN, Buffalo: In my experience, mild temporary or acquired hypothyroidism is very commonly mistakenly diagnosed, and I believe that this is probably truer now than it was when physicians relied on their clinical observations rather than on laboratory tests. Today, the physician suspecting hypothyroidism usually orders basal metabolic rate determinations, gets x-rays of bone and does a blood cholesterol test. If all these are within normal limits, he tends to dismiss the idea of hypothyroidism, not realizing that they are really rather crude techniques that are helpful in verifying the diagnosis in cretinism but not too helpful in the recently acquired cases or in the mild cases. There are probably innumerable children receiving iron tonics, multiple vitamins, liver injection, and whatnot, month after month, who are actually suffering from hypothyroidism and who merely need a little thyroid. Any new tests that will give us help in interpreting thyroid function will be welcome, especially those that can be given in early infancy, the period in which it is most important to make the diagnosis. In this instance the basal metabolic rate is of little or no help. There has not been sufficient time for the bones to show definite retardation, and even in complete athyreosis the cholesterol level may be normal. The protein iodine of the serum may be helpful eventually, but this determination is not available in most clinics. The uptake of radioactive iodine, as used by Dr. Reilly, has received much attention lately and may prove to be our most valuable test; however, the technical difficulties of these iodine analyses are great because of the small amounts encountered, namely, only 1 to 30 micrograms per 100 cc. of plasma as compared, for example, to 15,000 to 800,000 micrograms of urea or glucose. But which of all the tests is the best index to thyroid function it is idle to say, as has been pointed out by Dr. Means, in Boston, because they all test different aspects. The basal metabolic rate is an index of the impact of the thyroid hormone on all the end organs in the body. Its accuracy will depend both on the amount of hormone in the liver and on the sensitivity of the end organs to that hormone. The protein-bound iodine serum is an index of the circulating thyroid hormone, and radioactive iodine excretion, indicating, as it does, iodine collection, is an expression of the thyroid's hunger for iodine. In adults, the combination of the three tests can be more helpful to the clinician than any one alone. I should like to have Dr. Reilly tell us his opinion of the iodine test for practical use in the average hospital clinic.

DR. WILLIAM A. REILLY: The diagnosis of hypothyroidism must be made early in the disease. I think that if any of us saw in patients the marked hypothyroidism that is described as cretinism in the average textbooks, we would not overlook it. It should be detected early, as has been driven into everybody's ears for so many years. In the early stages, I do not think one can rely too much on any one test. There are, after all, many laboratory tests. The physician has to take a careful history, do a good physical examination and then resort, if necessary, to whatever laboratory facilities he has in his area. Regarding the iodine tests, if Dr. Jacobsen had in mind the protein-bound iodine, it is just too difficult to do unless the technician is accustomed to it. We cannot always rely on low uptake of iodine in the thyroid gland and excess output of urine as pathognomonic only of hypothyroidism. We find it to some extent in other conditions. After you have taken your history, physical findings and some laboratory tests and you are still in doubt, the therapeutic test with the thyroid substances is very helpful. But let me caution you again: Everybody who responds to thyroid does not have hypothyroidism per se. For instance, when thyroid extract makes someone lose weight, it may do so not because of a need for thyroid substance but because of the calorigenic effect of thyroid substance.

INTESTINAL OBSTRUCTION IN THE NEWBORN AND THE INFANT

DIAGNOSIS AND SURGICAL MANAGEMENT

Oswald S. Wyatt, M.D., Minneapolis

The past decade has brought rapid strides and real progress in the recognition of intestinal obstruction in the newborn. Surgical intervention, instituted at the proper time, is saving more of these babies every year. Not only has our diagnostic ability been stepped up, but we have also been greatly benefited by the splendid progress that is being made in pediatric roentgenology. The work of Newhauser and Caffey in pioneering the field of pediatric roentgenology is setting a splendid example for all medical schools, and I am sure that a place must be made for such appointments on all our faculties. Pediatric pathology is likewise making rapid strides under Farber and surely, before long, must be integrated into our pathology and pediatric departments.

The gas pattern of the intestinal tract of the full term newborn infant has been studied and plotted, giving us for the first time factual knowledge regarding the x-ray findings in the first few hours of life.

When confronted with a newborn infant who has not passed meconium and is vomiting everything, you must realize at once that you are dealing with some form of intestinal obstruction. A flat plate of the abdomen is in order, and a study of the gas pattern will help to localize the obstruction and in many instances aid you in visualizing the type with which you are dealing.

There are many types of intestinal obstruction in the newborn, but at this time I shall attempt to outline the diagnosis and surgical management of only three of the most common conditions that one is called upon to treat.

The most frequent type of obstruction met with in the newborn infant is hypertrophic pyloric stenosis. This congenital anomaly, and surely it must be considered as such, usually manifests itself about the second or third week of life by the onset of vomiting. Occasionally, an infant may start to vomit in the first few days or weeks of life; this is exceptional, but pyloric pathology must be kept in mind. For the first few days the vomiting is not forceful, and no one becomes very concerned. If the baby is on the breast, the feedings are carried on as usual. If the feedings are artificial, some juggling usually begins to take place in the formula. A few more days pass and the vomiting becomes projectile in character. This is definite cause for alarm and very well should be. The projectile vomiting usually takes place after every feeding within an interval of one to 30 minutes. At this period

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in the disease, the baby is definitely losing weight and the stools and urine have become scanty. After about a week of this, the infant will appear dehydrated. At this point pyloric stenosis should be definitely suspected, the baby hospitalized without further ado, and all responsibility taken away from the mother. This is usually her first-born child, a male, and she becomes panicky.

Hospitalization and a thorough examination, at this time, will reveal a dehydrated infant, below his top weight, with little if any stool, and with scanty, highly colored urine. Observation at feeding time presents projectile vomiting, which is one of the three cardinal diagnostic signs. Visible gastric peristalsis, another of the cardinal diagnostic signs, is easily visualized. After proper sedation the pyloric tumor can be palpated nearly 100 per cent of the time. This is the third cardinal sign. If the tumor is not palpated at once, try before feeding, during feeding or immediately after vomiting. By this routine you will usually discover the acorn-like tumor for which you are searching. Palpation of the tumor is not absolutely essential for the diagnosis. If the history is good, projectile vomiting is present, and there is visible gastric peristalsis, most pediatrists will make the diagnosis. However, the surgeon feels more at ease if he can palpate the tumor before surgical intervention. Unless there is some doubt regarding the diagnosis, x-ray studies are never indicated.

Preoperative preparation of these babies must be carried out in close team play with the pediatrist. I definitely feel that the improved mortality rate in this disease is directly due to the forward strides taken in the preoperative and postoperative care of these sick babies and that the credit must certainly be given to the pediatrists. The thoughtful and careful use of intravenous fluids, blood and plasma has surely saved the lives of many of these babies. I do not think that operative technique has improved much since the days when Downes, Ladd, Bolling and their contemporaries started to perform the Ramstedt operation, but the mortality has definitely and steadily decreased, so that today it should not be over 0.5 to 1 per cent. This state of affairs has been brought about principally by the pediatrists and their teaching.

Ordinarily, it takes about 24 to 48 hours to prepare these babies for surgery. This is never an emergency operation, and you must take sufficient time to make your little patient safe for surgery. It might be wise, while the infant is being readied for surgery, to stop all feedings by mouth and to give fluids and supportive treatment by vein and hypoclysis. With the continuation of feedings, after surgery has been decided upon, I have always been amazed that we have not lost more of these babies from aspiration or pneumonia. If you choose to continue fluids or thick cereal feedings, then it might be advisable to keep the baby on its abdomen in Trendelenburg position. Hemoglobin estimation must be done at once; if it is below 70 per cent a small transfusion is in order. To overcome dehydration, venoclysis or preferably hypoclysis should be started. The amount necessary is determined by the infant's appearance and skin turgor. Usually 125 cc. to 175 cc. morning and evening suffice, the last clysis being given about eight hours before surgery.

Gastric lavage must be done, one to two hours before surgery, until returns are clear. The only preoperative medication necessary is 1:1,200 scopolamine hydrobromide. Be strict about maintenance of body heat preoperatively, during surgery and postoperatively. These infants do not tolerate heat loss. The anaesthetic of choice is still ether by open drop method. Oxygen should be administered through a catheter under the mask while surgery is in progress. Place the baby in slight Trendelenburg position if there is much mucus or danger of aspiration from stomach contents. The operation of choice is still the classic Ramstedt, which should be completed in under 30 minutes, barring unforeseen accidents.

Carry the baby back to the prewarmed crib with his head lowered, and place him in Trendelenburg position, to combat shock and to avert aspiration. If the baby is in extreme shock a few hours after surgery, give a small transfusion of plasma. Hypoclysis may be indicated the first day after surgery, rarely thereafter. Five to 10 cc. of water is given by mouth within a few hours after surgery. Alternate every two hours with 10 cc. breast milk or formula for the first 24 hours. Increase feedings 5 to 10 cc. daily or as rapidly as the baby will tolerate them. The hospital stay is usually about 10 days, the baby being on 3 to 4 ounces (93.3 to 124.4 Gm.) each feeding. With the weight curve rising steadily, the baby is ready to go home. Do not place him in his mother's care until everything is normal, and the mother will be entirely free from worries.

DUODENUM

Duodenal and small bowel obstruction are met with not too infrequently in the newborn. I think that in the past many of these cases have been overlooked, have gone undiagnosed, and that the infants have died after some obscure diagnosis of bowel obstruction. I shall confine these remarks to only the intrinsic types of obstruction, in other words, the atresias and stenoses. In our experience this is the most frequent type of intestinal obstruction that we encounter in the newborn.

The diagnosis is relatively easy and surely should be made in the first 48 hours of life. Given an infant who vomits from the very first feedings and has not passed meconium, I reiterate, you are dealing with some type of intestinal obstruction. If the vomitus is not bile-stained, the obstruction lies above the ampulla of Vater; if bile-stained, it lies below this ampulla. If the obstruction is in the duodenum or upper jejunum, the abdomen does not present much distention, and when present, it is confined to the upper abdomen. If the obstruction is low down in the small bowel, marked distention is usually the case. Tympany and high-pitched, pistol-shot borborygmi are present. If an atresia is present, no meconium shows on the diaper and a rectal swab gives a negative Farber test. If the condition is stenotic in nature, small amounts of meconium are present and Farber's test is positive.

A flat plate of the abdomen will clinch the diagnosis. The gas pattern of the small bowel, large bowel and rectum, in the full term infant, should be visualized within about nine hours after birth. Absence of gas in the colon after nine hours indicates small bowel obstruction. If only the stomach and duodenum are distended and filled with

gas, it means you are dealing with a duodenal obstruction. This is a frequent location for an atresia. If stomach, duodenum and a few loops of jejunum are visualized, a jejunal obstruction is revealed. If many loops of small bowel are visualized, this indicates an obstruction in the ileum, the terminal portion being most frequently involved. If you bear in mind the gas pattern of the intestinal tract in the full term newborn infant, the x-ray will not only help make a positive diagnosis, but in most instances will also locate the approximate site of the trouble. Once the diagnosis is established, immediate surgical intervention is mandatory. Remember that the newborn infant presents the best surgical risk within the first 72 hours of life. The state of hydration is still good and the general condition is excellent. On the other hand, I feel that any major surgical procedure in the first 12 hours of life, unless life-saving, is too hazardous for the infant. I believe that the kidneys and lungs of the newborn should be allowed 12 hours of postnatal life to become stabilized. Body heat should be carefully guarded before the baby goes to surgery. An indwelling intravenous catheter should be in place, ready for any emergency. The operative table should be warm and room temperature about 85 F.

For the past several years, Dr. Joseph Baird, of the anesthesia staff of the University of Minnesota, has administered the anaesthetic for all of these infants. At the university, we use cyclopropane supplemented with 1 to 3 minims (0.06 to 0.20 cc.) of curare. In his hands this type of anaesthetic has been highly successful and safe. I feel that the strides made in anaesthesiology in infant surgery, in the past decade, have been truly amazing and deserve a great deal of credit for the results in pediatric surgery that we are all able to achieve. It has permitted us safely to lengthen our operating time, has proved a most important adjunct, and, I am sure, has saved the lives of many of these babies. We have no fear of cyclopropane and curare when they are given to these infants by Dr. Baird or a member of his group. It is very comforting for the surgeon to have such a skilled anaesthetist on his team. The operator is entirely free of anaesthesia worries, and of the necessity for the proper administration of fluids while he is operating.

When the operation is about to start, the intravenous drip is opened, plasma is connected to the line for instant use, and the proper blood must be in the operating room. If shock is anticipated or if the procedure is unduly prolonged, plasma must be given. Blood is not used unless definitely indicated. Be cautious about the administration of intravenous fluids, and do not overtreat the baby. Your little patient is always much safer when underhydrated rather than overhydrated. I am sure that many babies have been drowned by too much intravenous fluid.

The operative procedure consists of anastomosing the distended loop of bowel with the collapsed segment and of establishing continuity around the atretic or stenotic segment or segments. It constitutes a lateral anastomosis done with only one layer of sutures. Be careful, at the angles of the collapsed bowel, that you do not occlude your newly made lumen. Speed without carelessness is essential in operating on these wee ones. Be meticulous about hemostasis and extremely gentle in handling the tissues. Be anticipating shock all the while, and use every means to prevent it. Adrenal cortex extract is given during surgery and repeated every four hours for the next 48 hours. Postoperatively, all fluids are given intravenously until peristalsis is heard, then mouth feedings are started on a pyloric schedule. Usually the babies require hypoclysis daily for the first week. If the hemoglobin drops below 70 per cent, give a small transfusion. Again, I emphasize, do not give any intravenous fluids that are not absolutely indicated. If the baby becomes distended, institute nasoduodenal suction to prevent too severe postoperative distention and to protect your anastomosis. The oxygen tent is a valuable adjunct if distention becomes severe.

To get these babies well every detail must be supervised with the utmost care. The operative time must be properly chosen, the anesthetist and the choice of anesthesia must be of the best available in your community, and the postoperative care must be carried out in close cooperation with the pediatrist.

INTUSSUSCEPTION

After the first few weeks of life, acute intussusception is the most frequent type of intestinal obstruction encountered during infancy. To me, intussusception has always been an intriguing problem, and I am ever amazed at some of the variations it may present. Sometimes when one least expects it, it will be present, and again, when one is fairly sure of the diagnosis, it is absent. Why it is not suspected in the early hours of the disease and why immediate steps are not taken to prove or disprove it is difficult to understand. This condition, I think, presents the gravest tragedy that can happen within the abdomen of the healthy, well nourished infant, and it behooves every physician to substantiate or rule out the disease once suspicion is aroused. Too frequently the diagnosis is made late, or not at all, and what should have been a simple surgical cure is converted into a catastrophe.

There is nothing very difficult about the diagnosis of intussusception in infancy if we will take time to listen to the history and make a thorough physical examination. What are we in such a hurry about when every hour is so important to this sick baby? In many instances, it is a telephone diagnosis, if you will listen to the little mother tell her story. Any infant who has passed blood and mucus by bowel must be seen by the physician within the hour, and for one of us to give the mother an assuring answer or prescribe a palliative procedure over the telephone is pure neglect and abuse of our obligations and responsibilities. The infant, particularly under 1 year of age, who is stricken with intermittent abdominal pain should be suspected of having intussusception and be investigated at once. The onset may be violent, striking like a "bolt out of the blue," it may be of moderate severity or even mild in nature. Frequently, the mother will compare the attacks with labor pains. If the onset is violent, you are dealing with a tight intussusception and the severity of the attack will produce shock in the baby. If the pain is moderate to mild in nature, no shock will be present. I think that most of our textbooks should be revised regarding their remarks on shock in intussusception in infancy. Fully 50 per cent of babies with intussusception do not present shock. The wee one may vomit

with the first attacks of pain, but vomiting is not an early symptom in acute intussusception. Abbott, Sedgewick and Rodda, who did some of the early studies on intussusception, felt that assumption of the knee-chest position during an attack of pain was almost pathognomonic for enterocolic intussusception. A normal bowel movement early in the disease should not deceive you; it is merely an evacuation of the rectum resulting from violent peristalsis. Within a few hours blood and mucus will be passed by rectum, the so-called "red-currant jelly" stool. Rarely does this appear in under six hours.

With such a history abdominal examination will usually reveal a mass. If any question arises regarding the mass, administer chloral hydrate by rectum, have the baby asleep, and carry out a thorough abdominal palpation. This procedure will usually elicit the presence of the abdominal tumor. Given this triad of intermittent abdominal pain, blood and mucus by bowel, and a palpable abdominal tumor, the physician can make confident diagnosis of intussusception. If, by any chance, there is still a question regarding the diagnosis, a barium sulfate enema can be administered by experienced and skilful hands. The argument as to whether a barium sulfate enema is justified for diagnostic or therapeutic purposes still goes on. I am sure all of us have seen intussusceptions, in the first few hours, that have been successfully and safely reduced with a barium enema. Likewise, we have seen intussusceptions that have become spontaneously reduced. Now, the dangers of such a procedure must be kept in mind. They are: incomplete reduction, injury to the appendix and its blood supply, and rupture of the gut. With this in mind, I question whether a barium enema should ever be used as a therapeutic agent if the onset was violent, if the baby is in shock or if blood has been passed by rectum. I can see no objection to its being used as a diagnostic measure, even after blood has been passed, if there is any doubt regarding the diagnosis. Then, if the diagnosis is established, surgical intervention should be executed at once.

The preoperative preparation of a baby about to be operated on for acute intussusception must be done with the utmost care. A thorough gastric lavage must be done, and an indwelling gastric catheter must be in place before the baby goes to the operating room. Shock, if present, must be treated, and an intravenous catheter must be in place and functioning properly. A dextrose drip must be working, with plasma connected up, and with blood available. Plasma will usually suffice to combat the operative shock, but if much blood has been lost, whole blood must be given. With the extremities wrapped in sheet wadding to conserve body heat, and with a room temperature of 85 F., the baby is ready for the operation.

With the baby placed in slight Trendelenburg position and under ether anaesthesia, by open mask, a long right rectus incision will give the proper exposure for at least 90 per cent of all intussusceptions, which are enterocolic in type. When the peritoneal cavity is opened, free straw colored fluid is usually encountered. Locate the mass at once and bring it into the operative field under direct vision. I think it unwise to attempt blind reduction, for fear of rupturing the bowel and losing the baby because of peritonitis. Once the mass is in the hands of the operator and the extent of the intussusception is visualized, reduction is started. With one hand on the entering bowel and the other at the head of the intussusception, execute reduction by pressure on the head and the most gentle traction on the entering bowel. If the neck is extremely tight, a hemostat may be inserted along the side of the intussuscipiens and gently spread to dilate the neck. Once the reduction starts, it will progress smoothly until the head reaches the neck; then, if the remaining mass is gently squeezed with a warm pack, satisfactory reduction can be completed. Inspect the junction of the terminal ileum and cecum closely to make sure that reduction is complete. Search for a Meckel's diverticulum, which may have started the intussusception, and if it is found, remove it. If the appendix has been caught in the intussusception, remove it. Perhaps more frequently than we realize, appendiceal involvement may initiate an intussusception. The thickened, leather-like feeling of the terminal ileum is merely due to hypertrophied lymphoid tissue; do not open the bowel and expect to find polyps. Terminate your procedure as quickly as possible, with meticulous closure of the abdominal wall. Carry the baby back to his crib with his head down, place him in Trendelenburg position, and tie all four extremities.

If the bowel has been opened for any reason or the appendix removed, give antibiotics for the first 72 to 96 hours postoperatively. Hypoclysis is necessary for the first 24 hours and water by mouth thereafter. Feedings may be started the third postoperative day if tolerated. Administer vitamin C for the first week postoperatively to assure better wound healing. Keep the baby flat on its back for 10 days to prevent possible evisceration.

In closing, may I again emphasize the importance of a careful history, early examination and diagnosis, followed by immediate reduction. I am confident that by these methods the mortality of acute intussusception in infancy will be markedly reduced throughout the nation.

63 S. 9th Street.

ABSTRACT OF DISCUSSION

DR. CLIFFORD D. BENSON, Detroit: I agree that if morbidity and mortality rates in this type of obstruction are to be further reduced, the most important factors are early surgical diagnosis and early surgical treatment. In evaluating the improved results of the surgical management of various types of obstruction in the intestinal tract of the newborn and infant, we must give credit to a better understanding of the fluid requirements of these patients and also to the cooperation of the pediatricians and the house officers who did a great deal of the work in meeting these fluid requirements. I do not believe that surgery of the newborn can be carried out successfully without this cooperation because to meet these preoperative and postoperative requirements of care requires time and patience. At the Children's Hospital of Michigan during a seven year period, there were 400 infants admitted to the hospital with a diagnosis of intestinal obstruction; 50 per cent had obstruction due to pyloric stenosis, 16 per cent had either atretic or stenotic lesions of the gastrointestinal tract, and 20 per cent were classified as having intussusception. During the past 10 years, on the surgical service at Children's Hospital of Michigan and on the private service at Harper Hospital, 401 infants have been operated on for pyloric stenosis, with three deaths, or a mortality rate of 0.74 per cent. Some of these infants started vomiting as early as the third or fourth day of life. This is unusual, as it is usually the second or third week when they develop projectile vomiting.

We have also seen infants come to operation at the end of the third month; the oldest child on whom we operated for pyloric stenosis was 5 months old and had been vomiting for one month. From the findings at performance of the Fredet-Ramstedt operation, there can be hardly any doubt, as far as the surgeon is concerned, that this is a mechanical type of obstruction. I feel that those patients who have been treated medically and who have recovered did not have a true pyloric stenosis but had pylorospasm. The results are so good today from the Fredet-Ramstedt operation and the morbidity and mortality rate so low that it does not seem justifiable to keep these babies, except for a limited time, under medical management. If they do not respond to thick feedings, atropine and sedatives, they should be prepared for the Fredet-Ramstedt operation. In regard to obstructive intrinsic lesions of the duodenum of the newborn, they are either complete or incomplete. It is important to distinguish between these two, not only from the standpoint of the urgency of the operation but also in regard to the use of barium. We never use barium when we have made a diagnosis of atresia of the duodenum, but in stenosis, in which there is a small opening and some gas and fluid go through, one can safely use barium in localizing the site of obstruction. Acute intussusception is still the most common abdominal catastrophe of an obstructive nature that can occur in the infant. With early diagnosis and surgical reduction within the first 24 hours, the mortality is low; but with each hour above 24, the mortality increases. I have always felt that the location of the mass is no definite criterion of the severity of the lesion. As Chaffin has emphasized, the important factor is whether it is a constricting or nonconstricting type of intussusception. No doubt many of the early intussusceptions, within the first 12 hours, can be reduced by a barium enema, provided that they are of the ileocecal or colic-colic type. If the barium reduction is to be done, it should be done in the hospital under the complete supervision of the surgeon and the roentgenologist, and the child should remain in the hospital for three or four days while it is ascertained whether the reduction has been successful. I am not in favor of the barium reduction routinely, because many of the intussusceptions will not only be single ileocolic type but may also have an additional ileo-ileo intussusception. Furthermore, there may be lesions causing the intussusception, especially in the older child, such as a polyp or Meckel's diverticulum, that will require surgical therapy. At the Children's Hospital of Michigan and on our private service at Harper Hospital from 1946 to 1949, there were 42 infants with acute intussusception; 34 were under 1 year of age and eight under 2 years of age. Three intussusceptions were reduced by barium enema with no further treatment, and these patients were 1 week, 4 months, and 8 months old. Thirty-four had surgical reduction, with one death, or 2.9 per cent mortality. There were five infants who required intestinal resection and primary anastomosis for irreducible intussusception. One death occurred. The combined mortality rate of barium reduction and surgical treatment for the entire group of 42 infants and children was 4.8 per cent. With early diagnosis, proper preoperative and postoperative care, good anesthesia and gentle and careful surgery, the infant with intestinal obstruction, as discussed by Dr. Wyatt, has an excellent chance of recovery.

DR. CLIFFORD SWEET, Oakland, Calif.: Dr. Wyatt has called our attention to three important causes of intestinal obstruction in infants. Anyone can use Dr. Wyatt's paper as a text and save the lives of nearly every one of these infants, unless he sees the child too late after the original golden opportunity has passed. Any baby should be operated on as soon as he is in condition, since he cannot be maintained indefinitely on parenteral fluids alone and, if allowed to pass the peak, may lack the ability to come up a second time. I should like to ask Dr. Wyatt and all others to stop speaking of the "gas pattern" of the intestinal tract and use the more accurate term "air pattern." The pattern is formed by swallowed air from which oxygen is absorbed, leaving the nitrogen behind, and is not the result of some mysterious gas-forming machinery within the intestipal tract. When all teachers of medicine stop making this error the misnomer "colic" will all but disappear. The projectile vomiting does not take place after every feeding. On the contrary, it may at first occur only once or twice daily. Late in the disease, after the stomach has become dilated it may retain two or more feedings before it disgorges itself. Projectile vomiting may begin at birth with no deformity present in the intestines except congenital hypertrophic stenosis of the pylorus. I have twice operated successfully on babies born prematurely at seven months. In one of these operations, done under local anesthesia, the baby was eviscerated. Since then I have not used local anesthesia. Usually projectile vomiting begins about the end of the second week of life, as Dr. Wyatt pointed out, and this fact causes those not familiar with the condition to miss this diagnosis more often than any other. I have never found it necessary to give a baby a sedative in order to feel the pyloric tumor. If the baby is taking a feeding at the time of palpation, and if his physician is standing at his head and steadily and gently lowers his finger into the baby's abdominal wall, he will feel the tumor if it is present. He can readily feel the contracted stomach through the infant's abdominal wall and, following its outline with his finger tip, can be literally led directly to the tumor, which otherwise might be missed because of variation in its surface relationships. I do not agree with Dr. Wyatt on postoperative feeding of infants with pyloric stenosis. I have followed the teaching of Faber and Chandler, who demonstrated by x-ray studies that nothing leaves the stomach for 24 hours after operation. I give the baby nothing by mouth for 24 hours and maintain him in balance with parenteral fluids. Then I give him one, two or three ounces (31.1, 62.2 or 93.3 Gm.) of breast milk or formula every four hours in the daytime and allow him to wake up for feedings during the night. By the morning of the fourth postoperative day he is ready to go home; I have sent the baby who is still on the breast home the day after operation. I do not emphasize the importance of keeping these babies as warm as Dr. Wyatt does. The likelihood of shock is increased by the application of too much external heat. The Children's Memorial Hospital in Chicago found that keeping the patient cooled to a rectal temperature of 98 F. during surgery is advantageous, especially during the summer months. I would emphasize the importance of never forgetting the possibility of intussussception. During the early hours of an intussussception, before bleeding has taken place, I have reduced it with a barium enema and have then not operated on the patient. I have not always removed the appendix. In some cases the appendix was so edematous and so far advanced toward gangrene that it seemed inadvisable to remove it. So far I have had no cause for regret. I do not leave the child in the hospital as long as Dr. Wyatt does, and I do not believe that keeping the child flat on his back for 10 days has any influence on possible evisceration. I should like to suggest the transverse abdominal incision through one or both rectus abdominal muscles, at any level, which affords easy access to the intussusscepted mass and is far superior to the longitudinal one. It affords perfect exposure and heals so rapidly that the danger of evisceration is practically nonexistent.

DR. OSWALD S. WYATT: Dr. Sweet brought up the matter of intestinal obstruction. Sometimes, instead of using a thin barium mixture—and, if you are going to use barium, it must be very thin—we use lipiodol.® It is a little more expensive, but we feel it is safer. Barium, of course, must never be given by mouth if you suspect atresia or complete obstruction, not the strangulation type of obstruction. The gas pattern, as Dr. Sweet brings out, is rather interesting. I think our feeding schedules vary somewhat. Dr. Sweet's is just as good as mine. Other men use a slightly different type. I do not think we should be too fussy about what kind of feeding schedule we are going to put the babies on. I think that sometimes we make a mistake by turning the baby over to the mother too early. So often, it is the first-born child. I feel the mothers are much happier if their babies do not go home until everything is well under control. Removal of the appendix, when we are dealing with an intussusception, can be done much more readily, I think, these days simply because of the antibiotics and drugs we are using. It was also the advice of my teachers that when we did an intussusception, we must never remove the appendix. That was quite true in those days because we did not have the antibiotics and the drugs, and too frequently we lost a baby from peritonitis. We do not fear that these days.

TRACHEOTOMY FOR PREVENTION OF PULMONARY COMPLICATIONS IN POSTOPERATIVE AND SEVERELY DEBILITATED PATIENTS

Joseph P. Atkins, M.D., Philadelphia

Pulmonary complications in the postoperative patient may be divided into two groups: those resulting from emboli and those produced by bronchial obstruction. This paper is concerned with the control of obstructive pulmonary lesions by tracheotomy in patients whose recovery is threatened by a respiratory complication that fails to respond to the ordinary measures for its prevention and control. Obstructive pulmonary complications produce two physiological disturbances: (1) the systemic, which is concerned with the problem of asphyxia,[1] and (2) the local, which is concerned with atelectasis or its sequelae—pneumonitis, drowned lung and lung abscess. The asphyxial state can be caused by sudden obstruction, because of occlusion of the upper airway or aspiration of massive quantities of vomitus. It can also occur in atelectasis as a result of reduction in the ventilatory surface of the lung. In the latter case the onset is insidious and the degree of anoxic injury difficult to appreciate. Anoxic injury to the central nervous system is well understood. The studies of Morrison [2] have demonstrated the permanent changes that occur in the central nervous system after short periods of anoxia. Galloway [3] has shown how damage to the lung occurs as a result of anoxic injury and makes the patient more susceptible to atelectasis and its sequelae. The two problems are therefore interrelated.

Tracheotomy has long been recognized as a safe and effective method of preventing asphyxia due to high obstructive lesions of the airway. What has not been generally recognized is that the threat of obstruction in the upper airway is an equally important indication for tracheotomy. It is only common prudence to prevent these anoxic episodes whenever their occurrence can be reasonably predicted. In extensive operations about the mouth, pharynx or neck there is danger from obstruction by edema, by interstitial hemorrhage and by inability to prevent the entrance of pharyngeal secretion or food into the lung. If an adequate airway is guaranteed, an easy access for aspiration of the tracheobronchial tree is established by tracheotomy, the patient is protected both from anoxic episodes and from aspiration pneumonitis. The additional operative intervention of tracheotomy is a negligible factor in comparison with the safety it affords.

The threat of obstruction can also be recognized in certain medical diseases, notably the convulsions of tetanus and encephalitis. This was forcefully demonstrated in the case that follows.

REPORT OF CASES

CASE 1.—A 5 year old boy was admitted to the hospital with mild tetanus. He was seen on the eleventh day of the disease. His symptoms were subsiding, and although he had mild attacks of laryngospasm with his seizures he had never shown signs of asphyxia. Tracheotomy was not performed. On the fourteenth day of his illness he suddenly had a single convulsion with severe laryngospasm that caused his death.

It may be difficult to recognize the need for tracheotomy in the very ill postoperative or debilitated patient with high obstruction. Because of weakness or central nervous system depression these patients are unable to respond with the vigorous respiratory effort usually seen in acute respiratory obstruction. The tendency of the observer is to believe that the obstruction is less severe than it actually is. For this reason the patient is permitted to suffer from an inadequate airway for a long period of time. The effort of breathing past the obstruction further exhausts the patient; he is unable to cough secretion out of his lungs, and the partial asphyxial state further reduces his ability to react to the hazardous situation.

CASE 2.—A 5 year old girl was operated on for relief of an esophagopleuralbronchial fistula due to a lye burn of the esophagus. Intratracheal anesthesia was used during a long and tedious thoracotomy. Eight hours following her operation mild signs of laryngeal edema developed. Direct laryngoscopy revealed fibrinous exudate in the subglottic area. The exudate was removed. This improved the airway, but it still was definitely narrowed. The stridor and indrawing were minimal. She remained restless, could not sleep and had distinct tachycardia. A second laryngoscopy eight hours later revealed reaccumulation of the subglottic exudate and accumulation of obstructive secretion in the trachea. A bronchoscope was inserted to relieve her obstruction. After an orderly tracheotomy she went to sleep, the pulse slowed, and her subsequent recovery was uneventful.

Failure to recognize the seriousness of that obstruction would have exposed the patient to the danger of sudden death by asphyxia or atelectasis as a result of the accumulation of obstructive secretion in the lung.

High obstructive lesions threaten life by asphyxiation. In a less obvious manner they threaten the lung by producing pulmonary congestion and interfering with effective cough. In contrast to this, low obstruction threatens the lung primarily. By reducing the ventilatory area of the lung, low obstruction carries also the threat of asphyxia.

Low obstructive lesions have two etiological components: (1) accumulation of secretions in the tracheobronchial tree and (2) failure of the expulsive powers of the lung to dislodge them. Secretion may arise in the lung itself or be aspirated from the pharynx. In the case of vomitus the aspirated material carries not only infection but also chemical irritants. Impairment of the expulsive mechanism is particularly relevant to this discussion. In this connection, we are not so much concerned with the loss of expulsive power due to anesthesia or opiates,

From the Broncho-esophagologic Clinic of the Hospital of the University of Pennsylvania.

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1. Gray, J. S.: The Physiology of Respiratory Obstruction, Ann. Otol., Rhin. & Laryng. 59: 72-77, 1950.
2. Morrison, L.: Histopathologic Effects of Anoxia on the Central Nervous System, Arch. Neurol. & Psychiat. 55: 1-34, 1946.
3. Galloway, T. C.: Laryngo-Tracheo-Bronchial Obstructions and Their Secondary Effects, Ohio State M. J. 36: 851-854.

which tend to exert a temporary effect, but with the loss that occurs as the result of mechanical failure. This is seen in the emphysematous patient or the patient who does not have the muscular power to produce an effective cough.

The result of the low obstruction is atelectasis or its sequelae—bronchopneumonia, drowned lung or lung abscess. The literature contains many studies of this problem, particularly as it concerns postoperative atelectasis and bronchopneumonia. The paper by Haight and Ransom [4] clearly outlines the various factors responsible for the development of these lesions. Dripps and Deming [5] have shown how the development of atelectasis and bronchopneumonia can be reduced by proper care of the postoperative patient. At the University of Pennsylvania proper care includes at least the following: careful anesthesia, with restoration of the cough reflex at the earliest possible moment; hyperventilation, particularly in the early postanesthetic period; frequent turning; encouragement of coughing; early ambulation; prophylactic antibiotic therapy, and removal of accumulated secretions by bronchoscope or catheter aspiration.

There is no doubt that careful enforcement of such a regimen will protect most patients. However, this regimen becomes difficult to enforce if the patient cannot cough effectively, if weakness or paralysis prevents ambulation or if secretions are constantly being aspirated into the lung. In these circumstances the use of frequent catheter and repeated bronchoscopic aspiration may be necessary to keep the lungs clear enough to maintain satisfactory oxygenation. When this condition is of long duration, they become impractical. The care that is required of the nursing and medical personnel is often not available. In these circumstances tracheotomy simplifies the care of the patient by providing easy access to the tracheobronchial tree for aspiration, while it guarantees an unobstructed airway.

There are many circumstances in which tracheotomy can save life by protecting mechanically impaired respiratory function in the very weak patient. Priest, Boies and Goltz [6] and others [7] have shown how tracheotomy may be applied to the care of bulbar poliomyelitis. Bofenkamp and Priest [8] have used it in the management of botulism. We have found it to be particularly useful in postoperative neurosurgical patients in whom pulmonary complications constitute one of the most formidable problems. This is a group in which cerebral anoxia is particularly to be avoided. Our experience with these patients has been summarized by my colleagues, Taylor and Austin.[9] Two illustrative cases will demonstrate the value and effectiveness of tracheotomy in the protection of the lower respiratory tract.

4. Haight, C., and Ransom, H. K.: Observations on the Prevention and Treatment of Postoperative Atelectasis and Bronchopneumonia, Ann. Surg. **114**: 243-262, 1941.

5. Dripps, R. D., and Deming, M. V.: Postoperative Atelectasis and Pneumonia, Ann. Surg. **124**: 94-110, 1946.

6. Priest, R. E.; Boies, L. R., and Goltz, N. F.: Tracheotomy in Bulbar Poliomyelitis, Ann. Otol., Rhin. & Laryng. **56**: 250-263, 1947.

7. Grulee, C. G., Jr., and Panos, T. C.: Epidemic Poliomyelitis in Children, Am. J. Dis. Child. **75**: 24-39 (Jan.) 1948. Galloway, T. C.: Bulbar Poliomyelitis, J. A. M. A. **123**: 1906 (Dec. 25) 1943.

8. Bofenkamp, B., and Priest, R. E.: Tracheotomy in Botulism, Ann. Otol., Rhin. & Laryng. **58**: 1093-1099, 1949.

9. Taylor, G. W., and Austin, G. M.: Treatment of Pulmonary Complications in Neurosurgical Patients by Tracheotomy, to be published.

CASE 3.—A 73 year old man was admitted to the Hospital of the University of Pennsylvania with progressively deepening stupor. Before a diagnosis could be made a left-sided atelectasis with distinct signs of anoxia developed. He appeared moribund. Bronchoscopic aspiration revealed a tremendous amount of secretion in both lungs. Because of the patient's loss of ability to expel secretions a tracheotomy was done. During subsequent days a profuse bronchorrhea required frequent aspiration through the tracheotomy tube. He survived the pulmonary difficulties. This permitted diagnosis and evacuation of a large subdural hematoma. The patient gradually recovered from his stupor. With the patient's increasing awareness the cough reflex became effective, and the profuse bronchial secretions disappeared. He made a complete neurological recovery and was decannulated before discharge.

The tracheotomy was a lifesaving procedure that maintained life before and after the operation so that specific neurological surgery could effect a cure.

CASE 4.—A 57 year old man was admitted to the Hospital of the University of Pennsylvania. He was comatose, had increased intracranial pressure and a respiratory rate of 10. His neurological lesion could not be localized. The bronchi contained very tenacious secretion. To insure an adequate airway a tracheotomy was done. He had no cough reflex. At times his respiratory rate fell as low as 4. Despite this severe respiratory depression, he was maintained by careful nursing, oxygen therapy and, at times, a respirator. He died suddenly one month after tracheotomy.

At autopsy an old hemorrhage into the medulla was observed with a second area of fresh hemorrhage, which caused his death. Despite the fact that this man had lived for one month with minimal protective respiratory reflexes, the lungs were clear. One would expect to find an extensive atelectasis and bronchopneumonia in such a patient. It seems reasonable to believe that the tracheotomy contributed to the integrity of this man's respiratory tract.

It has been our experience that when the cough reflex is abolished it may be impossible to prevent atelectatic and anoxic injury even with tracheotomy. We tracheotomized one patient who had a brain tumor; he died after several weeks of coma with a necrotizing tracheobronchitis and bronchopneumonia. Tracheotomy is not a panacea, but in the majority of cases in which it is indicated it offers a simple and positive means of protecting the respiratory tract.

The patient to whom tracheotomy is offered for the prevention of atelectasis and asphyxia usually has a serious organic disease that may in itself be fatal. The demonstrated ability of tracheotomy to prevent the added burden of a respiratory complication may be the deciding factor in achieving recovery.

The variety of circumstances in which life may be threatened by mechanical impairment of respiratory function makes it necessary for the physician to think not in terms of managing a specific disease but in terms of categorizing this as a state of pathological physiology seen in medical and surgical diseases. The ordinary measures for preventing and treating postoperative pulmonary complications can be applied to the nonoperative patient when comparable problems are encountered. When the ordinary measures fail, tracheotomy offers a safe and usually effective means of preventing atelectatic and asphyxial injuries that may seriously impair recovery.

SUMMARY AND CONCLUSIONS

Obstruction in the upper or lower airway may threaten life by asphyxiation or by atelectasis and its sequelae.

Tracheotomy can relieve or prevent these injuries.

The indications for tracheotomy may be overlooked in circumstances in which potentially fatal obstruction may occur or when the signs of obstruction are masked by debility.

When routine measures fail to protect the lower respiratory tract because of accumulation of secretion or failure of the expulsive mechanisms, tracheotomy offers a safe and effective method of treatment.

ABSTRACT OF DISCUSSION

DR. JOEL J. PRESSMAN, Beverly Hills, Calif.: Dr. Atkins has stressed the absence of respiratory symptoms resulting from atelectasis, particularly in debilitated and cachectic patients, as well as in those who are semiconscious or unconscious because of either a drug narcosis or a diseased state. The importance of this cannot be overestimated, since I am certain that many more patients are lost because of failure to recognize atelectasis than because of improper treatment. But, what price does the patient pay for the tracheotomy that Dr. Atkins advocates? Undoubtedly he pays something. For example, the cough becomes less effective, since it depends for its effectiveness on the development of a preliminary increase in intrathoracic pressure. This increase occurs as a result of the contraction of the rib cage and the abdominal muscles, but for maximum effect a close laryngeal sphincter is required so that a percentage of this increase is lost when the laryngeal sphincter is rendered noneffective by the use of a tracheotomy tube. But, I wonder whether the forceful cough, deprived the patient by the tracheotomy, is, after all, always an advantage in the type of atelectasis of which Dr. Atkins speaks, or whether under certain conditions forceful cough can be a disadvantage and the tracheotomy, by virtue of lessening its force, prove to be of more value than is ordinarily supposed. For example, in these atelectatic states there is a plug within the lumen of a bronchus, occluding it. Beyond this plug and distal to it in the lung segment that it supplies, the pressure is relatively negative. In the first stage of cough one expands his thoracic cage to take a deep breath and the pressure beyond the plug becomes even more negative. In the next stage of the cough process one forcefully contracts the thoracic cage against the closed laryngeal sphincter, as a result of which intratracheal and intrabronchial pressures increase. This added force is, by the laws of physics, applied equally in all directions, including downward against the plug. In the presence of the relatively negative pressure beyond it and in the face of the increased pressure above it, isn't it at least possible that sometimes the cough does just what one doesn't want it to do, which is to force the plug more deeply into the bronchus? In that case wouldn't one say that it could be advantageous not to have so forceful a cough in the presence of the type of atelectasis under discussion? May not, therefore, the price one has to pay for the tracheotomy tube in the form of a less effective cough be a blessing in disguise and an advantage even apart from the opportunity it gives for aspiration?

The important thing in the treatment of this type of atelectasis is not so much preserving especially forceful cough but instituting measures to get air beyond the plug and convert the minus pressure distal to it to a plus pressure, so that even a feeble cough will force the plug out of the bronchus instead of into it. Of course, the best way is to remove the plug by aspiration. But in obstruction of the smaller distal branches that can't be done. One therefore tries many other measures. Nothing in the treatment is as important as administering CO_2 to the point of marked hyperpnea, not only to an immediate postoperative patient, as Atkins mentioned, but also to all greatly weakened patients until they are completely recovered from their debilitated state. I advocate, not atropine, as is commonly employed to dry secretions, but, quite to the contrary, enormous quantities of potassium iodide, intravenously if necessary to liquefy the secretions so that they can be more readily extruded by even a feeble cough. I believe that when we can do so postural drainage should be maintained in the Trendelenburg position and at least part of the time with the face down to get the advantage of gravity and drainage as is done in bronchiectasis. In these cachectic states in which mucoid material is present bilaterally turning a patient on his side as is conventional seems illogical, since if you contend this helps the uppermost lung to drain, I can with equal reason and logic point out that it also helps the dependent lung to fill, and, even more, it limits its expansion during respiration, creating an ideal condition for the conversion of a unilateral atelectasis into a bilateral one.

DR. JULIUS A. WEBER, Seattle: Tracheotomy for the prevention of pulmonary complications brings up a controversial subject, one reason being that it is another surgical procedure. This is no objection if it means saving a life. Another reason is that it does hinder the normal ability of the bronchi to clear themselves. However, when a patient is unable for various reasons to exert enough of the positive lung pressure to induce a satisfactory cough, he then needs medical artificial or mechanical aid. If this cannot be maintained or aided by the various known means at hand, including bronchoscopic removal of substances or secretions by means of forceps or suction or by the use of catheter aspiration to the nose or mouth, then in individual psychic cases a tracheotomy may be justifiable. Proper catheter aspiration through the tracheotomy tube can be taught to new, untrained medical personnel quicker and easier than the nasal or oral route. In other words, if all other available methods fail, or if there is some mechanical reason such as some head, nasal or oral operation or ophthalmology, then I believe that tracheotomy is to be considered.

DR. JOSEPH P. ATKINS, Philadelphia: I want to make it perfectly clear that tracheotomy is never done when the simpler measures referred to in the paper will suffice. When they seem to be failing bronchoscopic aspiration is done early to prevent or relieve a developing atelectasis. When these measures fail tracheotomy is usually done after a bronchoscope has been introduced to guarantee an airway during the procedure. We use a small incision and antibiotic pack, as described by Dr. Gabriel Tucker. This prevents subcutaneous emphysema and wound infection. I agree that there is a loss of the effectiveness of cough produced by the presence of a tracheotomy tube. However, these patients who require tracheotomy already have an ineffective cough. For that reason the tracheotomy is necessary. By this means relatively inexperienced personnel can maintain the integrity of the respiratory tract in a patient with a severely impaired cough mechanism. I thoroughly agree that keeping the respiratory tract functioning actively is the best means of protecting it, whether the patient be tracheotomized or not.

In answer to a question as to the use of wetting agents, my colleagues and I use aqueous penicillin, 5,000 units per cc. When introduced into the tracheobronchial tree it seems more effective than other liquefying agents. We do not know if this represents an antibiotic or mucolytic action of the penicillin. We do know that when penicillin solution is introduced into the tracheobronchial tree the aspiration of viscid secretion is greatly facilitated.

Neurologists Hammond and Mitchell.—The years from 1862 to 1880 may be regarded as the cradling period of American neurology, which was born during the Civil War. Many general practitioners who served in the army medical departments emerged as practicing neurologists. Conspicuous among them was William A. Hammond (1828-1900), who was appointed Surgeon-General of the United States Army, and S. Weir Mitchell (1829-1914), who operated a hospital for nervous diseases in Philadelphia (1862). The team of Hammond and Mitchell virtually placed neurology on the medical map of the United States, and they were towers of strength in its early growth. The then new and rigorous neurologic enterprise began to sparkle in its activity, and superior medical minds were attracted to its ranks. The New York Neurological Society was founded in 1872 by a distinguished group, and three years later the American Neurological Association held its first meeting.—Pearce Bailey, M.D., The Past, Present and Future of Neurology in the United States, *Neurology*, January-February, 1951.

TREATMENT OF IDIOPATHIC SPONTANEOUS PNEUMOTHORAX

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and
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During the past four years the majority of idiopathic spontaneous pneumothorax patients admitted to the thoracic surgery section of the Veterans Administration Hospital (Kennedy) have been treated by simple operative procedures with highly satisfactory results. Our objective has been to induce rapid reexpansion of the lung by aspiration, water seal tube and open thoracotomy as the indications became clear from study of each case.

Kjaergaard [1] in 1932 was among the first to note the lack of relationship between pulmonary tuberculosis and spontaneous pneumothorax in healthy persons. This concept has been confirmed by the observations of Ornstein and Lercher [2] and others.

Spontaneous rupture of subpleural vesicles is the commonest cause of idiopathic pneumothorax, as it is in some spontaneous pneumothoraces complicating pulmonary tuberculosis (Perry [3]). The mechanism responsible for the rupture is increased pressure in the vesicle due to an improper function of the bronchus leading to the vesicle. Hayashi [4] has submitted evidence that suggests that a scar tissue flap in the bronchus is the intermittent obstructing agent permitting the expected increased pressure in the vesicle. Theoretically, congenital anomaly, functional imbalance, edema, fibrosis and infection may produce a valvelike obstruction in the bronchus.

Hamman [5] suggested that pneumothorax sometimes results from rupture of the mediastinal pleura under the force of mediastinal emphysema. Macklin and Macklin [6] showed that mediastinal emphysema and pneumothorax could result in dogs by retrograde dissection of air into the mediastinum from parenchymal alveolar rupture. This may represent the cause of spontaneous pneumothorax when careful examination of the lung reveals no apparent pleural defect.

Idiopathic spontaneous pneumothorax occurs more frequently in young men, but no age, sex or race appears to be immune. The collapse is usually of sudden onset and is unrelated to physical activity. Pain and dyspnea of some degree are usually present. Clinical study fails to demonstrate a pulmonary pathological process, and a high percentage of patients will eventually recover without treatment. Interestingly enough, tension pneumothorax is not commonly observed in this condition. Rarely is there hemorrhage into the pneumothorax, and occasionally there is bilateral pulmonary collapse. Captive lung that requires decortication for reexpansion is not uncommon after prolonged expectant treatment. A recurrence of the spontaneous collapse is not infrequent. Spontaneous reexpansion may require but a few hours or several weeks, depending on the persistence of the fistula and the degree of the collapse. Persistent collapse or frequently recurring spontaneous collapse have been recognized in recent years as indications for surgical treatment.

Active reexpansion of the spontaneously collapsed lung has not been advocated as acceptable treatment in reviews and reports of this condition. Of course, the necessity for decompression of tension pneumothorax is well recognized. Cautious aspiration of small amounts of air in order to prevent enlargement of the fistulous opening has been suggested frequently when collapse is of great degree but not necessarily productive of tension.

In our earlier cases thoracoscopy with the Coryllos thoracoscope was usually done in an attempt to visualize the offending lesion, but the actual leaking site was seldom observed with this method. Blebs, often multiple, were seen fairly frequently, but these were usually intact. Routine thoracoscopy introduces an element of delay in treatment unwarranted by the resultant benefits.

In this series evacuation of the air by intercostal catheter connected to an underwater seal was practiced in every case in which collapse was sufficient to permit introduction of the necessary trocar and cannula without danger. With rare exceptions, reexpansion occurred rapidly, often in a matter of minutes. In these cases suction has been applied through the thoracotomy bottle for a few moments at hourly intervals. When reexpansion was impossible or difficult to attain, the necessity for further surgical treatment was apparent. The possibility of the development of chronic pneumothorax was obviated. Complications were absent, and hospitalization was of short duration. With minimal inactivity, patients were able to return to gainful occupation much earlier than with the usual passive treatment. The technical aspects of the procedure itself are extremely simple, no more painful than thoracentesis and may be done as a ward or office procedure.

Forty patients have been admitted 46 times with 47 spontaneous pneumothoraxes at Kennedy Hospital since July 1946 (table 1). Four patients have been admitted twice, and one of these had pneumothorax first on one side, then on the other. The other three had ipsilateral recurrences. One patient had two ipsilateral recurrences. One patient had simultaneous bilateral pneumothorax.

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1. Kjaergaard, H.: Spontaneous Pneumothorax in Apparently Healthy Persons, Acta med. Scandinav. **1932**, suppl. 43, pp. 1-159 and 1-93.

2. Ornstein, G. C., and Lercher, L.: Spontaneous Pneumothorax in Apparently Healthy Individuals: Clinical Study of 58 Cases with Discussion of Pathogenesis, Quart. Bull., Sea View Hosp. **7**: 149-187 (April) 1942.

3. Perry, K. M. A.: On Spontaneous Pneumothorax, Quart. J. Med. **8**: 1-21 (Jan.) 1939.

4. Hayashi: Cited by Kjaergaard.[1]

5. Hamman, L.: Note on Mechanism of Spontaneous Pneumothorax, Ann. Int. Med. **13**: 923-927 (Dec.) 1939.

6. Macklin, M. T., and Macklin, C. C.: Malignant Interstitial Emphysema of Lungs and Mediastinum as Important Occult Complication in Many Respiratory Diseases and Other Conditions: Interpretation of Clinical Literature in Light of Laboratory Experiment, Medicine **23**: 281-358 (Dec.) 1944.

The average age of the patients was 28.3 years, with the eldest 59 and the youngest 20. Sixteen were in the 20 to 24 age group, 13 in the 26 to 29 group, seven in the 30 to 34 group and only four above 35. Although there is some age selectivity of patients admitted to veterans hospitals, the above figures closely parallel the age incidence generally reported for the disease. All but one of the patients were men, and all but one were white. However, all reports indicate a much higher incidence in men.

Except in a few instances, there was no apparent relationship to exertion such as coughing or lifting. In many patients the onset occurred while the patient was at rest —sitting in a chair or car or even during sleep. In every case onset of the collapse was associated with pain, usually in the affected side but occasionally in the midchest. This pain was usually sharp, sudden in onset, aggravated by respiration, and it gradually subsided over a period of hours to a dull ache.

The pain was usually followed by and occasionally coincident with dyspnea. In some instances dyspnea was absent, in others so mild as to be unnoticed until attention was directed to it by questioning. Sometimes it was severe enough to require oxygen therapy.

Cough was sometimes noted after the collapse but was not severe. Some patients experienced coughing episodes

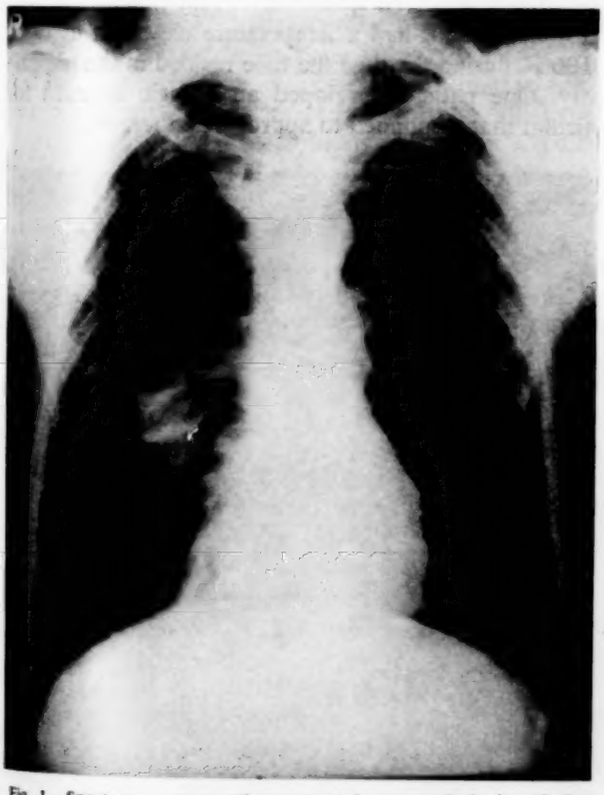

Fig. 1.—Spontaneous pneumothorax treated conservatively for 10 days without change.

previous to the collapse, but this was uncommon. In two instances temperature elevation as high as 100 F. was found on admission.

A slight collection of fluid was frequently observed in the costophrenic angle of the affected side as revealed by fluoroscopy or the chest roentgenogram. One patient had a large serous effusion complicating the pneumothorax that responded to multiple needle aspirations. This patient is being repeatedly observed for evidence of underlying disease. Associated hemothorax was observed in one patient.

The duration of the collapse before admission was 24 hours or less in 18 instances, one to seven days in 17 instances, one to three weeks in eight instances and

Fig. 2.—Contents of the tray and bottle for the institution of closed thoracotomy drainage.

over one month in four instances. The shortest duration before admission was two hours and the longest three months.

The patient with a diagnosis of spontaneous pneumothorax on admission to the ward is subjected to immediate fluoroscopic examination, and a chest roentgenogram is made. Expiration and inspiration films are made when there is doubt about the diagnosis, since small pneumothoraces may not be visible on full inspiration. When

TABLE 1.—*Spontaneous Pneumothoraxes Seen in 40 Patients*

Thoracic Surgery Section, Kennedy VA Hospital, June 15, 1946, to May 15, 1950

	Unilateral Collapse			
	One Lung	Both Lungs	Bilateral Collapse	Total
Patients	38	1	1	40
Pneumothoraxes	38	2	2	42
Admissions	38	2	1	41
Recurrence in four patients	..	..	..	5

the surface of the lung is approximately two inches or more from the lateral chest wall a simple trocar and cannula is inserted, usually in the second or third interspace just behind the pectoralis major muscle. After infiltrating with 1 per cent procaine, a small skin incision (approximately 1 cm.) is made. Introduction of the trocar is painless if the procaine solution is properly injected. A no. 24 Foley catheter is then inserted through the cannula, the cannula removed and the balloon of the catheter inflated. The catheter is connected to a glass tube under water in a large Erlenmeyer flask. An untied silk suture is placed for use in the closure of the skin when the catheter is removed (figs. 1, 2, 3).

Occasionally reexpansion of the lung may cause paroxysmal coughing for a short period. Reexpansion usually occurs rapidly, often in a matter of minutes. The catheter remains in place until no more air can be evacuated and until the column of water visible in the glass

tube has ceased to fluctuate for 24 to 48 hours. The balloon is then deflated, the catheter removed rapidly during forced expiration and sulfadiazine ointment applied to the wound during simultaneous tying of the previously placed suture to prevent entry of air into the pleural space. Daily fluoroscopic examination is carried out while the catheter is in place, and chest roentgenograms are made following reexpansion of the lung (fig. 4).

Fig. 3.—Patient whose roentgenogram is shown in figure 1 after the institution of closed thoracotomy drainage.

Unless parenchymal changes are noted, or unless there has been an unusual collection of pleural fluid or the course complicated by fever, no special bacteriological studies are made. It has been well established that spontaneous pneumothorax in the apparently healthy person is rarely a precursor of or manifestation of underlying pulmonary disease. However, it should be borne in mind that pulmonary tuberculosis and other pulmonary diseases may be complicated by spontaneous pneumothorax. Physical and roentgenographic examination will usually disclose such underlying disease.

In 17 instances the catheter was not used. Ten pneumothoraces in nine cases were small and reexpanded rapidly without therapy. In one early case thoracoscopy revealed emphysematous blebs, which were excised during thoracotomy.

Aspiration of air was accomplished as a primary procedure in four patients with five pneumothoraxes. Reexpansion occurred in three patients. Aspiration of air was unsuccessful in one case, and thoracotomy was necessary.

Generally we believe that if thoracentesis is necessary to aid reexpansion the intercostal catheter introduction will be a safe procedure that allows more rapid reexpansion than other methods of treatment. Noteworthy perhaps is the aseptic pleuritic reaction induced by the intrapleural catheter, which by its adhesive effect may tend to prevent recurrences. However, there should be no objection to a judicious trial of aspiration when this seems advisable. The use of an intercostal catheter should not necessarily require hospitalization.

An intercostal Foley catheter was used in 30 instances. There were three failures. In one patient the pneumothorax had been present for two months, and decortication was necessary to effect reexpansion. In another a defect was present in a large bulla that was repaired during thoracotomy. In a third patient the lung was reexpanded, but the pneumothorax recurred promptly, and it was necessary to excise a large bulla to achieve the desired result. In one patient a second catheter was inserted into a pocketed area of pneumothorax not evacuated by the first catheter. This patient had extensive emphysema.

The catheter remained in place for an average time of four days. The longest period was nine days, and the shortest period was two days. Except for the failures noted above, there were no complications. The patients were routinely given penicillin prophylactically. An occasional patient had a temperature elevation as high as 100 F. during the time the tube resided in the pleural cavity. One patient developed an allergic reaction to penicillin that responded to appropriate therapy.

TABLE 2.—*Treatment Used for Spontaneous Pneumothoraxes in 40 Patients*

Thoracic Surgery Section, Kennedy VA Hospital, June 15, 1946, to May 15, 1950

Treatment	Patients	Pneumothoraxes	Failures Requiring Operation	Treatment of Recurrence	
				Catheter	Operation
Observation	9	10	0	0	1
Thoracentesis	4	5	1	0	0
Catheter	27	27	3	3	1
Total	40	42	4	3	2

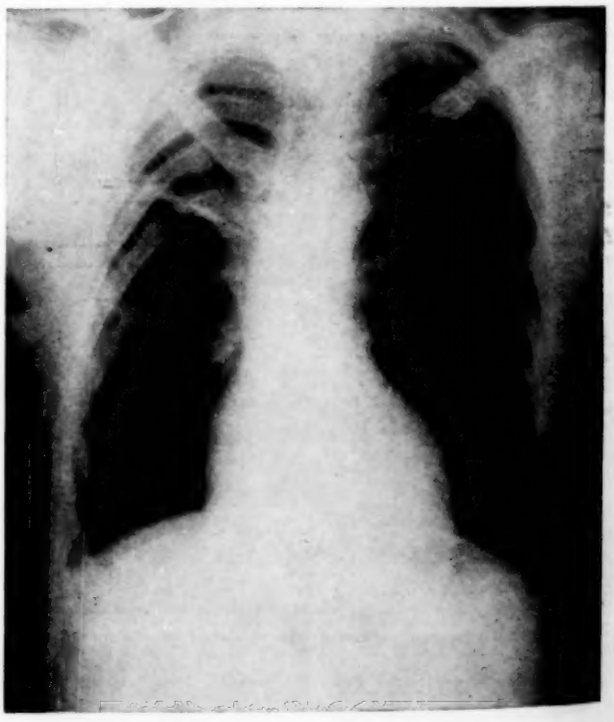

Fig. 4.—Roentgenogram of same patient taken 10 minutes after the institution of closed thoracotomy drainage. The lung has reexpanded. Subsequent roentgenograms showed the lung to be entirely free of pathology.

The average time for reexpansion has been variously reported as one to four weeks (Ornstein), four weeks (Rottenberg [7]), seven weeks (Hyde and Hyde [8]), one

7. Rottenberg, L. A., and Golden, R.: Spontaneous Pneumothorax: A Survey of 105 Cases, Radiology **53**: 157-167 (Aug.) 1949.

8. Hyde, B., and Hyde, L.: Benign Idiopathic Spontaneous Pneumothorax: Review of 63 Cases, Am. J. M. Sc. **215**: 427-430 (April) 1948.

to nine weeks (Niehaus [9]) and six weeks to 2½ months (Kjaergaard [1]). Myerson [10] reported an average hospital stay of 11 days in a series of 36 patients, but it was not stated whether the lungs of his patients were fully reexpanded at discharge, or whether the patients were then returned to their occupations. The average period of hospitalization for our patients treated successfully with the catheter was 11½ days. Hospitalization for a minimal collapse averaged 10.9 days. Reexpansion of the lung was complete in nearly every patient at the time of discharge, and patients were permitted to return to work.

Six patients required thoracotomy because of failure of more conservative measures, or because surgical treatment was indicated for roentgenographically demonstrated blebs or bullae. One patient had been treated by bed rest over a period of three months, often requiring oxygen therapy for severe dyspnea during that time. Another had been followed conservatively for two months, and decortication was necessary to effect reexpansion.

Recurrence is a characteristic of spontaneous pneumothorax. Ten of the patients reported gave a history of one or more previous similar episodes. Three patients had recurrence after catheter reexpansion, and one of these experienced two recurrences. The latter was a 54 year old Negro with extensive emphysema. There is one patient who suffered the condition in the contralateral side one year after the first episode.

The recurrence of spontaneous collapse in four of these 40 patients occurred within a period of four months. Twenty-two patients have been followed from one to three years postoperatively. None of these 22 patients has experienced recurrences. It was not possible to follow five patients.

In the past injection or insufflation of various agents into the pleural space has been advised to aid in prevention of recurrence. It is our opinion that these methods are to be condemned because of the resultant reduction in pulmonary function and the discomforts endured by many of the patients who have received these forms of therapy.

SUMMARY

Spontaneous pneumothorax occurring in healthy persons is a temporarily disabling condition that in most instances tends to correct itself. Simple operative treatment results in rapid reexpansion of the lung, greatly shortened period of disability, prevention of the undesired state of chronic pneumothorax and earlier return of the patient to his occupation. The introduction of the intercostal catheter for rapid reexpansion of the lung is briefly described. The indications for and the results of the use of this method in a group of 40 patients treated during the past four years are described. There have been no complications. Parenchymal disease has not appeared in the 22 patients who have been followed for periods of one to three years. This minor operation is an achievement of simplicity in the treatment of spontaneous pneumothorax.

9. Niehaus, R. F.: Simple Spontaneous Pneumothorax in Apparently Healthy Individuals: Report of 24 Cases, Am. J. Roentgenol. **57**: 12-27 (Jan.) 1947.

10. Myerson, R. M.: Spontaneous Pneumothorax: Clinical Study of 100 Consecutive Cases, New England J. Med. **238**: 461-463 (April) 1948.

EMPYEMA IN INFANTS AND CHILDREN

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and
Edgar Davis, M.D., Washington, D. C.

This paper presents a statistical analysis of 37 patients with empyema treated at the Children's Hospital, Washington, D. C., from Jan. 1, 1943 to April 1, 1948, with observations on the etiology, diagnosis, therapy and complications of the disease. The criteria used in selecting cases for this study were the presence of purulent pleural fluid and positive bacteriologic findings resulting from culture of this fluid, either during life or on postmortem examination. The diagnosis was made on autopsy specimens in eight instances; two of the deaths having followed surgical procedures. Those cases having no bacteriologic proof and those following traumas or the aspiration of foreign bodies are excluded from the series. The right pleura was involved in 21 instances (56.7 per cent), the left pleura in 13 instances (35 per cent) and both pleurae in three instances (8 per cent).

During this period of five years and three months, the incidence of pneumonia fluctuated from 625 cases in 1943 to 799 cases in 1946. Thirty-three (90 per cent) of the 37 cases of empyema occurred during the first three years of this study (table 1). During 1943 and 1944 empyema developed in six patients (16 per cent) who were receiving chemotherapy for pneumonia. None of the patients had received penicillin therapy. Although a few cases of sterile pleural effusion have occurred since 1944, there have been no cases of empyema as a complication of pneumonia. Of the 31 patients (84 per cent) in whom empyema developed before admission to the hospital, inadequate amounts of penicillin alone had been used in one instance, penicillin and a sulfonamide in two instances, also in inadequate amounts, and a sulfonamide had been used in 14 patients, 12 of whom had received the drug in inadequate amounts over a period of from one to three days. Sulfonamide therapy had been discontinued several days prior to the admission of the other three patients. Empyema did not develop in any patient with pneumonia in whom penicillin in adequate amounts had been administered early enough.

Former Pediatric Resident at the Children's Hospital, Washington, D. C. (Dr. Frazier); Professor of Thoracic Surgery, Georgetown University Hospital (Dr. Davis).

In this series, empyema developed most frequently during February, March, April, January and June, in the order named (chart 1). There is not only a seasonal but also an annual variation in empyema complicating pulmonary infections. One must be cautious, therefore, in attempting to explain the sudden drop from 10 or 12 cases annually, from 1943 through 1945, to one or two cases in 1946 and 1947.

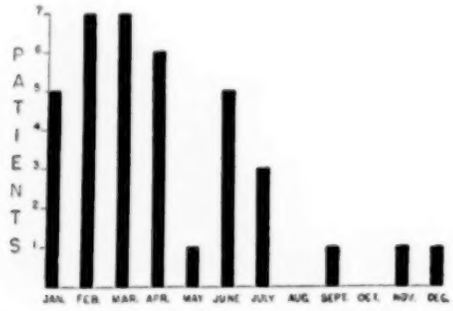

Chart 1.—Seasonal variation in empyema complicating pulmonary infections.

Fourteen (38 per cent) of the patients were under one year of age, while seven were in their second year. Therefore, 21 of the 37 cases (57 per cent) developed during the patients' first two years while only 16 developed between their second and twelfth years of age (chart 2). Although the admission records of the hospital show that there were only twice as many white as there were Negro patients admitted to the hospital, the incidence of empyema was four times greater in the white patients than in the Negro ones.

Staphylococci were recovered in 21 (56 per cent), hemolytic streptococci in 10 (28 per cent) and pneumococci in six (16 per cent) of the patients. Staphylococcus was the infecting organism in all infants under one year of age. In Forbes' [1] report of 37 cases he cites

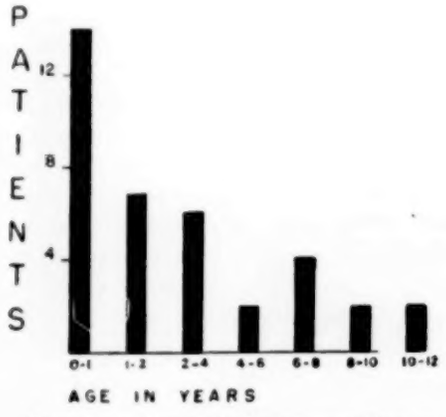

Chart 2.—Incidence of empyema according to age.

three additional series in the literature [2] (table 2), making a total of 146 cases in which it was possible to establish the presence of staphylococcic empyema in infants under 1 year of age. In the 146 cases reported by Forbes, Staphylococcus as the etiological organism varied from 17.4 to 73 per cent, with an average of 45.2 per cent. In 14 (37 per cent) of our patients under 1 year of age, the empyema was due to a staphylococcic infection. This was in sharp contrast to the empyema caused by pneumococci and streptococci in older age groups (table 3). Blood cultures were made in 14 instances. Four cultures, one of which was made at autopsy, were positive for organisms different than those found in the empyema. Throat cultures were of no aid in establishing the etiological organism of the pleura.

Without exception, the empyema followed upper respiratory infections, ten of which (27.5 per cent)

TABLE 1.—*Yearly Incidence of Empyema and Pneumonia*

Year	Empyema Cases	Pneumonia Cases
1943	10	625
1944	12	687
1945	11	762
1946	2	799
1947	1	657
1948*	1	447

* January, February and March.

TABLE 2.—*Incidence of Staphylococcic Empyema in Infants Under One Year of Age*

Source	Years	No. Cases	Staph. Cases	Staph., %
Spence, New York City	1913-1920	53	10	18.9
Neuhof & Berck, New York City	1928-1932	21	15	17.4
Hochberg & Kramer, Brooklyn	1929-1936	35	14	40
Forbes, St. Louis	1934-1943	37	27	73
Children's Hosp., Wash., D. C.	1943-1948	14	14	100
Total	.....	160	80	Av. 50

TABLE 3.—*Etiological Organism According to Age*

Age, Yr.	No. Patients	Staph. Cases	Pneumo. Cases	Strep. Cases
0-1	14	14	..	..
1-2	7	4	1	2
2-4	7	2	1	4
4-8	6	1	2	3
8-12	3	..	2	1
Total	37	21	6	10

were originally diagnosed as pneumonia and four (10.8 per cent) as measles. The onset was gradual in 25 (67.8 per cent). In 23 cases (62 per cent) there was no intermission between the symptoms of the upper respiratory infection and the onset of symptoms from empyema, 13 patients having been ill for less than one week and nine for less than four days before recognition of the empyema. This is in contradistinction to the common conception that there is usually an intermission between the respiratory infection and the empyema. In 11 of the 13 patients in whom empyema developed within one week after an upper respiratory infection, the empyema was staphylococcic in origin.

On their admission to the hospital, patients presented a multiplicity of symptoms, mostly referable to the respiratory infection. All of them had colds of varying degree. Physical examination of the chest revealed classical findings on percussion. However, auscultation disclosed rales in only 29.3 per cent, decrease or absence of breath sounds, with or without rales, in

1. Forbes, G. B.: J. Pediat. **29**: 45, 1946.

2. (*a*) Spence, R. C.: Empyema in Infants and Young Children, Am. J. Dis. Child. **20**: 545 (Dec.) 1920. (*b*) Neuhof, H., and Berck, M.: Staphylococcic Empyema and Pyopneumothorax: Pathogenesis, Pathology, Symptoms and Treatment, Arch. Surg. **30**: 543 (March) 1935. (*c*) Hochberg, L. A., and Kramer, B.: Acute Empyema of Chest in Children: Review of 300 Cases, Am. J. Dis. Child. **57**: 1310 (June) 1939.

65.3 per cent and bronchial breath sounds in 5.4 per cent of the patients. According to the normal variation of respiratory rates in children of different ages, only 15 of the 37 patients had an increased rate. Temperature and pulse varied a great deal. Eight patients (21 per cent) were noted to have an injected throat; four patients with hemolytic streptococcic empyema had nuchal rigidity; 16 patients had abdominal distention, and nine had hepatomegaly. Hemograms revealed anemia as a prominent feature; 64.8 per cent of the children had a hemoglobin content below 10 Gm. The most frequent roentgen finding was opacity of the side involved, suggesting the presence of fluid.

The course of the disease and the prognosis varied a great deal. In 1943, the longest period of hospitalization was 150 days and the shortest, 37 days, with an average of 75 days. In 1946, this average had dropped to 24 days. In 1947, the one patient reported was in the hospital 38 days; during the first 16 days he was treated with penicillin without benefit. After surgery, he remained in the hospital for 22 days.

The severity of the illness had a very close relationship with the duration of symptoms prior to entry. This group of seriously ill children on admission had a short preceding history indicating a fulminating course. They were usually dyspneic, cyanotic and had a large part of one or both pleurae involved. In these patients who had a gradual weight drop without a gain complications were more likely to develop. All of the cases caused by hemolytic Staphylococcus aureus were in this class. A very grave prognostic sign was the continuance of a rapid pulse and respiration with a drop in the temperature to near normal.

Eight of the 37 patients, seven of them under 5 years of age, had pyopneumothorax (bronchopleural fistula). Five were caused by staphylococci, two by hemolytic streptococci and one by pneumococci. Bronchopleural fistulas were manifested by the acute onset of dyspnea in every patient, severe cyanosis in over half of them and evidence of extreme illness in all. It is important to realize that children under 8 years of age may not cough up large quantities of purulent material through bronchopleural fistulas as is usual in adults.

Six additional patients were diagnosed by roentgenogram as having pyopneumothorax. If these six patients were considered as having empyema with bronchopleural fistulas and were added to the eight known cases mentioned above, we would have a total of 14 (38 per cent) of the 37 patients, which is almost identical to the figure of 40 per cent reported by Forbes. The last mentioned six patients have been restudied, bearing in mind the time relationship between thoracentesis and roentgenogram of the chest. Since roentgenograms of the chest did not reveal a fluid level in any of the patients prior to thoracentesis, it is logical to assume that in the roentgenogram taken after the thoracentesis the air had been inadvertently introduced. We, therefore, do not consider these six cases as representative of complications.

In the literature, there are several large series on the subject of empyema in children, which do not mention bronchopleural fistulas. Probably this complication has not received proper attention. Since patients with this condition are much more critically ill than those who have no fistula and since there is danger of immediate death from aspiration of the infected material into the good lung or from a tension pyopneumothorax, it is imperative that proper treatment be instituted without delay. In our opinion, the objection by some physicians to a roentgen examination of the chest of a critically ill patient with a pulmonary infection on his admission to the hospital is not justified.

TREATMENT AND RESULTS

Treatment consisted of the usual supportive measures, such as proteins, fluids and blood transfusions, with variations as indicated. There were 28 patients with empyema who were treated surgically while nine were treated medically. Six patients were moribund; they died shortly after admission. Their diagnoses were made at autopsy. A discussion of the complications present in all of these patients appears at the end of this article. Five patients started on a regimen consisting of thoracenteses with intrapleural administration of penicillin gave the following results.

In 1945, three patients had thoracentesis with introduction into the pleural cavity of from 5,000 to 50,000 units of penicillin, repeated on from one to four occasions, resulting in complete cure. The material aspirated from the pleural cavity of each of these three patients was either turbid or contained considerable flocculent material, but it did not have the consistency of thick pus. Sulfonamides and parenteral penicillin were also administered. Two of the cases were of pneumococcic and one of staphylococcic origin. The average period of hospitalization of these patients was 35 days. None has had recurrence.

Two patients, aged 10 years and 5 months, respectively, entered the hospital, the former 35 days and the latter three days after the onset of his illness. The infecting organism was Streptococcus in the first and Staphylococcus in the second patient. On admission, thoracentesis revealed thick pus. The 10 year old boy had a bronchopleural fistula treated with penicillin parenterally for six days before surgical drainage. Because of unsuitable living conditions at home, it was deemed best to keep him at the hospital for two months after his operation. The infant had two thoracenteses, intrapleural administration of penicillin during the first three days and surgical drainage on the fourth day. His postoperative stay in the hospital covered 79 days. Both patients recovered completely.

Surgical drainage was carried out on 18 patients when the infected pleural effusion became purulent. There were no complications, no deaths and no recurrences. Eight cases of empyema with complications were found. Six, associated with bronchopleural fistula alone, were treated successfully with immediate surgical drainage. One infant, 19 days old, with multiple lung abscesses and a bronchopleural fistula, died 10 days postoperatively. A boy, 2½ years of age, who had empyema complicated with suppurative pericarditis, myocarditis, bronchiectasis, atelectasis and generalized pulmonary fibrosis, died 40 days after drainage of the empyema.

The mortality in the 37 cases of empyema was 21.8 per cent. Of 28 patients with empyema treated surgically there were two deaths, both in patients having complications, giving a mortality of 7.1 per cent in the surgically treated cases. Fifteen of the 28 patients were under 2 years of age. Of the nine patients treated medically, six died, a mortality of 66.8 per cent. Since no therapy can be critically evaluated in moribund patients, and since death ensued in six patients before definitive treatment could be instituted, we have a corrected total mortality rate of two in 31 patients, or 6.4 per cent.

In our series, there were nine patients below 3 months of age, with a mortality rate of 44.4 per cent; two between 3 and 6 months of age, with a mortality rate of 50 per cent; three between 6 and 12 months of age, with no deaths; 15 between 1 and 5 years of age, with three deaths (20 per cent), and eight between 5 and 14, with one death (12.5 per cent). Forbes, in his series, reports a mortality rate of 42.8 per cent in patients under 3 months of age, 16.7 per cent in those between 3 and 6 months of age and 57.1 per cent in those between 6 and 12 months of age.

Our mortality rate for infants under 1 year of age having staphylococcic empyema was 35 per cent (uncorrected). Other case reports of staphylococcic empyema in this age group include Forbes' series, with a mortality rate of 40.7 per cent; Ladd and Swan,[3] mortality rate 36.3 per cent; Riley,[4] mortality rate 50 per cent; McEnery and Brennemann,[5] mortality rate 50 per cent; Hochberg and Kramer,[2c] mortality rate 52.5 per cent, and Neuhof and Berck,[2b] 66.7 per cent. Our total uncorrected mortality rate was 21.6 per cent. Forbes reported a total mortality rate of 26 per cent; Ladd and Swan, 27.3 per cent; Riley, 34.5 per cent; Hochberg and Kramer, 40 per cent; Neuhof and Berck, 42 per cent; McEnery and Brennemann, 42 per cent; Spence, 44 per cent, and Farr and Levine[6] 66.7 per cent.

Complications Revealed at Autopsy.—Of the eight patients on whom autopsies were performed, two died following operation. One patient, an infant 19 days of age, was found at autopsy to have multiple lung abscesses and bronchopleural fistula, while the other, a boy 2½ years of age, was found to have suppurative pericarditis, myocarditis, bronchiectasis, atelectasis and generalized pulmonary fibrosis. Of the remaining six autopsies performed on nonsurgical patients, pericarditis was found in three instances, while multiple lung abscesses, peritonitis and mediastinitis were discovered in one instance each.

SUMMARY AND CONCLUSIONS

Thirty-seven cases of empyema during a period of five and a quarter years are discussed. The incidence of empyema in infants was high, as was also the mortality rate. Staphylococcus was the infecting organism in all instances of empyema in infants in this series. Hemolytic Staphylococcus aureus occurred in the more seriously ill children. The importance of the diagnosis and prompt therapy of pyopneumothorax as a complication of empyema is discussed. Surgery by drainage of the empyema, supportive therapy and selective antibiotics would seem to be the treatment of choice. The complications found on autopsy of the eight patients is reviewed. All of the patients who died had complications other than the empyema.

3. Ladd, W. E., and Swan, H.: J. Pediat. **23**: 297, 1943.
4. Riley, C. M.: J. Pediat. **24**: 577, 1944.
5. McEnery, E. T., and Brennemann, J.: The Pleura, in Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1944, vol. 2, chap. 53.
6. Farr, C. E., and Levine, M. I.: Surg., Gynec. & Obst. **46**: 79, 1928.

SELF-ADMINISTRATION OF A MERCURIAL DIURETIC

EXPERIENCE OF PATIENTS WITH MERCAPTOMERIN (THIOMERIN®) SODIUM

Susannah Krehbiel, M.D.
and
Harold J. Stewart, M.D., New York

Since it was first discovered that certain mercurial compounds had diuretic properties, continuous progress has been made in finding new chemical variants which were more effective but less toxic. Mercaptomerin (thiomerin®) sodium is one of the preparations developed more recently. It combines sodium thioglycollate, a monosulfhydryl compound, with an organic mercurial to form the disodium salt of N (γ-carboxymethyl mercaptomercuri-β-methoxy) propyl camphoramic acid. The results of clinical observations carried out by Stewart, McCoy, Shepard and Luckey,[1] Herrmann, Chriss, Hejtmancik, and Sims,[2] Grossman, Weston, Edelman, and Leiter,[3] Winik and Benedict[4] and Enselberg and Simmons[5] have shown that mercaptomerin sodium is an effective diuretic not only when given intramuscularly and intravenously but also when given subcutaneously. There are many patients with cardiac disease who require frequent and regular injections of mercurial diuretics to maintain compensation and an ambulatory status. The fact that mercaptomerin sodium is effective when given subcutaneously led us to the notion that patients could be taught to administer the drug to themselves, just as diabetic patients are taught to administer their own insulin. The following study was therefore undertaken to ascertain the practicability of a regimen of self administration of mercaptomerin sodium.

Miss Henrietta Rogers, R.N., assisted in this study.
Dr. Krehbiel is a Fellow in Medicine (Cardiology).
Supported by a Grant-in-Aid from the Campbell Pharmaceutical Co., New York.
From the Department of Medicine, New York Hospital and Cornell University Medical College, New York.
Read before the Sixty-Third Annual Meeting of the Association of American Physicians, Atlantic City, N. J., May 1950.

METHOD

Patients participating in this study were ambulatory and attended the adult cardiac clinic of the New York Hospital. All required injections of mercurial diuretics at regular and frequent intervals for the maintenance of cardiac compensation. Patients selected for this study were first given an introductory group lecture, in which was described the project of teaching them to administer the mercaptomerin sodium injection to themselves, so that after learning the injection technique they could be placed on a regimen of giving the injections at home; each patient's mercurial regimen corresponded in frequency to the clinic routine to which the patient was already accustomed and was in accord with the orders of the regular clinic physician. The patients were instructed briefly in the techniques of sterilization and injection, by demonstration. They were taught to recognize the signs of deterioration of the drug in solution—a change from colorless to a yellowish hue and/or the presence of black specks of variable size and number. Each patient was then given an individual one-half hour teaching session. A mercaptomerin sodium instruction sheet was turned over to him for his permanent use. This contained complete information regarding the materials required for home sterilization and injection, the essential steps in sterilization, including the handling of equipment, the method used to draw the solution of the drug into the syringe under sterile conditions, the technique of injection and the proper storage of the mercaptomerin sodium and the equipment. The following list includes the necessary supplies: saucepan, strainer, alcohol, cotton, syringe, needles and mercaptomerin sodium.

At the time of the first individual teaching session, each patient went through the entire procedure under supervision. The reason for sterile procedure was explained in detail. The patient was corrected when necessary. If difficulty was encountered with any part of the procedure, that part was repeated until it could be performed satisfactorily. At this first session the patient was expected to make the self injection. Having the patient face this problem immediately dispelled his timidity about the procedure, so that at subsequent teaching sessions he was free to concentrate on learning the technique. Two individual clinic teaching sessions were usually required. Further individual sessions were provided when they were indicated.

The thigh was selected as the site for self injection. This area was the most accessible one. Patients were instructed to use alternate thighs for successive injections and to rotate the sites on the same leg.

When it was thought that the patient could perform the routine satisfactorily, arrangements were made for the nurse to visit the home in order to supervise the first injection. The time of the last clinic teaching lesson the patient was given a prescription for one 2 cc. syringe and three 25 gage ⅝ inch (1.6 cm.) needles. The nurse took the mercaptomerin sodium made up into solution to the home on her visit. A record was kept of the lot number of the vial and of the future dates of injection which that amount of the drug would cover. At the time of the home visit the nurse checked the equipment and then watched the patient carry out the whole procedure of injection. Revisits to the clinic were scheduled after one to three unsupervised injections at home.

On one of the early visits to the clinic for teaching sessions, the case histories were reviewed and the patients were examined. Initial records were made of the cardiac diagnoses, the duration of symptoms of cardiac failure, the use of digitalis, ammonium chloride, mercaptomerin sodium and other mercurials, with the length of time each had been required, and the presence of complicating diseases. The initial physical examinations provided base lines of the status of patients for comparison with subsequent visits. On each clinic visit the nurse recorded the temperature, pulse and weight; patients were examined and records were kept relating to the state of compensation. On the basis of these findings and of the changes in weight, an opinion relating to the maintenance of equilibrium was formed for each visit. The patient was also questioned regarding diuresis resulting from home injections, untoward effects, such as pain or nodule formation at the site of injection, and systemic disturbances, such as nausea, vomiting and diarrhea. Examinations were made to detect induration or nodule formation. Revisits were scheduled at approximately three week intervals. After patients had been on the home regimen for some time, they were taught to mix the mercaptomerin sodium with distilled water, maintaining a sterile technique and using the same needle and syringe as for injection.

At the close of the special study patients were returned to their regular clinic physicians for continued observation. Those whose self injection schedule had been satisfactory were recommended for continuance of the program.

OBSERVATIONS

Over a five month period, 71 ambulatory patients with cardiac disease were taught to give their own mercaptomerin sodium injections subcutaneously. In etiology and age they represented a cross section of the clinic population, being made up, for the most part, of patients suffering from rheumatic, arteriosclerotic and hypertensive heart diseases. A total of 1,425 injections of mercaptomerin sodium were self administered by patients. The total number of injections given by each patient ranged between three and 52. At the time the study was terminated most of the patients were giving themselves mercaptomerin sodium in 2 cc. amounts once (38 patients) or twice a week (25 patients); a few required a smaller amount at these intervals or the 2 cc. amount less frequently. Most of the injection schedules remained constant during the period of study, but in 15, alterations were made.

The majority of the patients, namely 50, required two clinic teaching sessions before starting on self injections at home; four required only one session, 14 required three, four required four and two required five.

During the period of the study one patient was observed for five months, 13 were observed for four and one-half months, 15 for four months, 10 for three and one-half months, 9 for three months, 5 for two and one-half months, 4 for two months, three for one and one-half months, 5 for one month and 6 for two weeks.

The assessment of maintenance of equilibrium was based on absence of an increase in symptoms or signs of cardiac failure and the relative constancy of the body weight. Sixty-two of the 71 patients remained in a state of equilibrium on the self-injection regimen during the period of study. In the other nine patients increasing symptoms of cardiac failure developed—an incidence not apparently greater than in other patients who came to the clinic for all of their mercurial injections. In six of these nine patients, failure was secondary to a respiratory infection. In one of the remaining three digitalis toxicity followed by pulmonary embolus developed; in another there was evidence of a rapidly decreasing myocardial reserve, and in the third decompensation was a result of hormone therapy for osteoporosis with concomitant salt retention.

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4. Winik, I. W., and Benedict, R. B.: Clinical Studies on Thiomerin: A New Mercurial Diuretic, J. Lab. & Clin. Med. **34**: 1254, 1949.

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REACTIONS

Thirty-four of the 71 patients experienced no untoward reactions. The remainder had either discomfort at the injection site or local nodule formation.

Forty-seven patients did not complain at any time of any discomfort at the site of injection. Twenty-four complained of discomfort after being questioned regarding it. In 10 of these the discomfort occurred consistently after each injection; in the remaining five, discomfort was intermittent. It was described as a stinging or burning sensation of varying duration from five minutes to two days. In none of these patients was the distress of such severity that they wished another route of administration.

Observations were made to ascertain the cause of the local discomfort certain patients experienced. The effects of the subcutaneous injection of 2 cc. amounts of isotonic sodium chloride solution, of mercaptomerin sodium and of distilled water were compared. Saline solution gave discomfort in only a few patients. Distilled water and mercaptomerin sodium solution induced distress in approximately the same number of patients, which amounted to pain following most of the distilled water injections; in only one patient was the distress from mercaptomerin sodium severer. It appeared therefore that the local discomfort following the subcutaneous injection of mercaptomerin sodium can for the most part be attributed to the distilled water in which it is dissolved.

Forty-six patients did not exhibit nodule formation at the sites of injection, a reaction seen in 25 patients. In 23 of these, nodules were of intermittent and isolated occurrence. Two patients had small nodules at the site of each injection. One of these varied the prescribed technique of injection. The other, who was obese, exhibited nodules at the site of injection on most occasions, and intravenous administration was instituted. This was the only patient for whom discontinuance of mercaptomerin sodium by the subcutaneous route appeared indicated.

Local infection occurred only five times in the 1,425 injections. In four patients it responded to the application of hot wet compresses; in the other one the cellulitis progressed to abscess formation and necessitated surgical intervention. Small areas of necrosis of the skin occurred once in one patient and twice in another, when the injection had been given too superficially. Nausea, vomiting and diarrhea were not encountered.

COMMENT

Our present experience, based on a study of 71 patients over a period of five months, shows that mercaptomerin sodium lends itself to self administration by patients. Patients can safely inject the drug subcutaneously provided supervision can be maintained and they can be seen by their physicians at frequent enough intervals to detect need for change in dosage and untoward effects. Equilibrium of the cardiac status was as easily maintained when patients gave themselves the injections at prescribed intervals and came to the clinic at intervals of two weeks or a month as in those coming to the clinic for all injections. The incidence of local discomfort and of nodules did not appear to be any greater than when the injections were given in the clinic or in the hospital, and the incidence of local infection was small.

As long as it is certain that the proper injection technique is being employed, the occurrence of transient local discomfort or nodule formation is not a contraindication to the use of the drug. Discomfort, whether intermittent or consistent, was not so severe that the patients wished to discontinue use of the drug. Indeed, 16 who experienced burning sensations consistently did not admit to having this difficulty until after they had been questioned regarding it on several occasions. Ten had been receiving the drug six months or longer before reporting distress.

It was found that the only restrictions on the self administration of mercaptomerin sodium were those resulting from the limitations of the patients. The limitations were dislike of self injection, mental incompetence and physical disability. Nineteen patients who started on the training course did not progress to self administration. Thirteen fell into the first category, four into the second and two into the third.

Immediate or delayed toxic reactions to mercaptomerin sodium were not encountered. Collapse, cardiac arrhythmia and renal damage were not observed. Skin rash and fever attributable to mercaptomerin sodium did not occur.

During the course of the study, five patients on the self administration regimen died. All deaths were sudden, with the immediate cause of death thought to be myocardial infarction in three and pulmonary embolization in one. In the fifth patient death occurred during hospitalization for Friedländer pneumonia. Each of these patients had been maintained in equilibrium on the regimen, and we were of the opinion that mercaptomerin sodium was not implicated.

According to attitude regarding the self-injection regimen, the patients could be divided into three groups. There were those who thought it was convenient and did not want to come to the clinic for injection again for fear that they would lose the advantages which had been gained. These were job holders, housewives and mothers, all with so many responsibilities that they could ill afford the time spent in coming to the clinic. The fact that they could give themselves mercaptomerin sodium at home frequently made it possible to be gainfully employed, a situation which was otherwise impossible. In certain patients the financial saving which resulted from the reduction in clinic visits was relatively great. There were 45 patients in this group. In the second group were those who accepted the home regimen as satisfactory but were passive in their enthusiasm even though they enjoyed the benefits of time and money saved. There were 17 patients in this group. The last group was made up of patients who preferred to come to the clinic for injection, even though they had done well on the self injection routine. Six patients comprised this group. None of these were working. They enjoyed the social outlet which their visits to the clinic afforded.

From the point of view of the clinic, there was a marked decrease in the routine work due to the reduction in clinic visits for mercurial injections. This applied, first, to the clinic aide and to the record room, since patients were processed less often and charts requisitioned less frequently. Secondly, there was a reduction in the work of the medical staff, who formerly were required to see the patients and sign the chart before the injection could be given. And, finally, the nursing personnel experienced a marked decrease both in the amount of preparation required at each clinic session and in the number of injections given. The average number of visits saved was around 150 each month, or 20 a clinic session.

One drawback in the early preparations of the drug was the instability of the drug after it had been dissolved. The stability has been improved, with the result that now deterioration has not occurred after three or four months even at room temperature. We did not find deterioration a problem, since patients knew how to mix the drug and prepared a bottle just before it was needed.

It appears from this study that more widespread application of the self injection of this drug by patients under physicians' guidance should take place. The fact that it is as effective as other mercurials in producing diuresis, together with the fact that patients can be taught to administer it to themselves by the subcutaneous route, points the way to its increasing use in self-injection regimens. This study was carried out under rigidly controlled conditions. Many of the precautions we took could be dispensed with in ordinary circumstances without sacrifice of any of the factors of safety. It would be for the physician to determine the mental competence, physical ability and willingness of the patient to cooperate in the self medication. Once these factors were ascertained, teaching the injection routine and mixing could be done essentially as it is in most clinics or physicians' offices in training diabetic patients to give their own insulin. A home visit by a nurse would be unnecessary. Patients should at first return frequently enough to their physicians for them to be certain that all was going well. Patients must be warned not to increase the amount or frequency of the injections and to return to the clinic at any change in the state of well-being.

SUMMARY

This study is concerned with the training of patients who require regular injections of a mercurial diuretic for the maintenance of compensation to make their own injection of mercaptomerin sodium subcutaneously, the drug having been found to be effective when given by this route. There is a medical precedent for such a plan with respect to self injections, since diabetic patients are trained to give their own insulin, this procedure forming a fixed part of the program of care of diabetic patients.

A total of 1,425 subcutaneous injections of mercaptomerin sodium have been self administered during a five month period by 71 ambulatory patients with cardiac disease. An average of two teaching sessions was required by the majority of patients to learn the procedure. The instructions in sterilization, injection and mixing of the drug have been well followed. Patients administered their own injections according to the schedule recommended by their clinic physicians, time between injections varying from twice a week to once every two weeks. One to 2 cc. of the drug was required. The patients returned to the clinic at two week to monthly intervals.

Diuresis occurred, weights remained constant and compensation was maintained. There was no greater incidence of deterioration of cardiac compensation than in the clinic patients who came to the clinic for all mercurial injections and were seen by physicians at each visit. There were no instances of acute cardiac failure or deterioration of cardiac status attributable to improper or inadequate administration of mercaptomerin sodium.

In most patients and after most injections there were no untoward reactions of any kind. In a certain number of patients transient local discomfort followed injections, and occasionally a nodule formed at the injection site. These nodules were not severe enough to warrant discontinuance of the regimen. The incidence of local infection in 1,425 injections was low, namely five. Small areas of necrosis of the skin from intradermal injection occurred only three times in the 1,425 injections.

The limitations preventing training of patients for self injection are aversion to the idea of self injection, mental incompetence and physical disability. Nineteen patients who were given preliminary instruction fell into these categories of limitation, leaving 71 who participated fully.

Patients benefited financially by eliminating some visits to the clinic or doctor and also saved time by self administration. The amounts of time and money saved depended on the number of visits that could be omitted.

Benefit to the clinic resulted from the reduction in its routine work. Time of the medical, nursing and secretarial staffs of the clinic were saved.

Our successful experience with this program leads us to the opinion that widespread adoption of the self-injection regimen should be encouraged, and it should find more extensive application in patients whose mercurial diuretic requirements are fairly stable and in patients who are suitable for such a program.

Air Transport of Pregnant Women.—Journey by air is the smoothest form of travel and there is far less chance of motion sickness or injury to the mother or foetus occurring from bumps and jerks than in any other form of public transport. Most airlines accept pregnancy cases up to the eighth month, provided they are in good health, but recommend that oxygen be available, whether or not the aircraft is pressurized. The limit is placed at the eighth month, so as to avoid, as far as possible, births in flight, which are not in the interests of mother or child and which throw an undesirable and unwarranted responsibility on the captain of the aircraft and crew, especially the stewardess . . . Such tests as have been done with the aid of a low-pressure chamber tend to confirm observations made along airlines to the effect that those in the later months of pregnancy are apt to suffer from lack of oxygen (anoxia) more readily than usual at altitudes over 8,000 feet, some even at 5,000 feet, owing to dyspnea from increased intra-abdominal pressure. It has been suggested that this degree of anoxia tends to stimulate uterine contractions and induce labour, but there is insufficient evidence to support this contention.—Sir Harold E. Whittingham, *Practitioner*, February 1951.

CLINICAL NOTES

RESECTION OF LEFT LOBE OF LIVER FOR BENIGN HEMANGIOMA

William A. Altman, M.D., Dallas, Texas

Sixty-eight cases of resection of the entire left lobe of the liver for hemangiomata have been described in the literature, and this case is reported in order to add another to that series.[1]

REPORT OF CASE

The patient, a 33 year old white woman, underwent exploration four years previously because of a large mass in the left upper quadrant, which had been present for at least 15 years. At the operation, four years previously, the tumor was thought to be malignant, but a biopsy revealed it to be a benign cavernous hemangioma. The patient was given an undetermined amount of x-ray therapy for two months following the operation, and there had been little or no change in the size of the tumor mass. The history revealed no serious complaints except for a heavy, dull aching feeling in the left upper quadrant of the abdomen.

The patient was in excellent general health. The general physical examination revealed no abnormalities except the abdominal mass, which extended approximately 15 by 20 cm. below the left rib margin and was firm, irregular and nontender. The mass descended with respiration. The only significant laboratory findings were a red blood cell count of 3,160,000 and a hemoglobin value of 64 per cent. The result of urinalysis was normal. The results of blood chemistry and liver function studies were all normal.

The operation was carried out with the patient under nitrous oxide-ether anesthesia. A high left rectus incision was made, removing the old operative scar. The left lobe of the liver was greatly enlarged, approximately 25 or 30 cm. in diameter, and covered with very large tortuous vessels. The falciform ligament was severed about 1 cm. from the diaphragm. Then the left suspensory ligament of the liver, holding the left lobe to the diaphragm, was severed. After the liver was freed and the left lobe delivered into the wound, the umbilical fissure was transfixed with many interrupted, overlapping no. 0 chromic surgical gut ligatures. A second row of overlapping interrupted ligatures was placed 1 cm. distal to the first row. Then the left lobe of the liver was removed, dividing the liver between the two rows of interrupted sutures.

Palpation of the right, quadrate and caudate lobes of the liver revealed no involvement with the hemangioma. The gallbladder was normal and no stones were palpated.

One absorbable gelatin (gelfoam®) sponge was left in the liver bed where there was a very small amount of oozing. The portion of the falciform ligament that remained on the liver was then sutured over the raw end of the liver, and several interrupted sutures were taken in the falciform ligament and diaphragm to suspend the liver to it. The wound was closed in layers.

The patient was given 1,000 cc. of blood during the operation because of her preexisting anemia, but this would not have been necessary for the blood loss. The vessels were so well controlled before excision of the left lobe of the liver that she lost practically no blood at all.

Pathology Report.—The left lobe of liver weighed 2½ pounds (1.1 Kg.) and measured 16 by 15.5 by 7.5 cm. Its serosal surface showed multiple firm fibrous adhesions. In one area there was a small fragment of lobulated fat attached. On the cut surface there were multiple surgical gut sutures approximating liver parenchyma. On section, the liver mass was filled with blood and decreased markedly in size after it was sectioned. Within the liver parenchyma there were numerous grayish yellow fibrinous nodules which appeared to be partly undergoing organization. No normal-appearing liver parenchyma was seen. The tissue was suggestive of hemorrhagic edematous lung rather than liver.

Sections from the liver showed almost complete replacement of liver parenchyma tissue by a vascular structure having numerous lumens filled with red blood cells. The walls of vascular structures were common to numerous lumens, giving the structure a cavernous appearance. The liver parenchyma tissue was scattered within the vascular structures and occupied approximately one fourth, by volume of tissue space. In focal areas there were fibrotic structures which appeared to be the organization of previous infarcted areas within liver parenchyma. No malignant change was seen.

The patient had an uneventful convalescence and was dismissed from the hospital on the eighth day after the operation.

This case well illustrates the ease with which the left lobe of the liver can be resected if careful steps are taken with the through and through, overlapping, interrupted chromic ligatures to isolate the resection line from the vascular liver. This same technique is applicable to the resection of other tumors of the liver.

202 W. Tenth St.

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COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Terramycin Hydrochloride.—Terramycin is an antibiotic isolated from the elaboration products of the actinomycete Streptomyces rimosus when the microorganism is grown on suitable culture media. The crystalline hydrochloric acid salt is formed by the reaction of the free base, terramycin, with hydrochloric acid.

The assay for the potency of terramycin hydrochloride employs the same test organism and media as recommended by the Antibiotic Division of the U. S. Food and Drug Administration for the turbidimetric assay of streptomycin (Federal Register, October 28, 1948; Section 141.101, paragraph J.). The manufacturer also employs a colorimetric method wherein the transmittancies of the test solution and a house standard are compared.

The determination of the toxicity of water-soluble terramycin salts is similar to that used for sodium penicillin as described in the U. S. Food and Drug Administration Regulations for Tests and Methods of Assay of Antibiotics and Antibiotic-Containing Drugs, Section 141.4, except that 0.3 ml. of a 5,000 micrograms per ml. aqueous solution of terramycin hydrochloride is used.

Actions and Uses.—Terramycin hydrochloride exercises bacteriostatic or bactericidal effect, depending on its concentration. It is active in vitro against certain strains of Beta hemolytic streptococci, Alpha hemolytic streptococci, nonhemolytic streptococci, pneumococci, staphylococci, Escherichia coli, Aerobacter aerogenes, Klebsiella pneumoniae, Hemophilus influenzae and a number of other microorganisms. It is not very effective in this respect against certain strains of Pseudomonas aeruginosa or Bacillus proteus. Infections produced in embryonated eggs by members of the rickettsial group and by certain viruses are controlled by the drug. Terramycin hydrochloride has therapeutic action in experimental Beta hemolytic

streptococcic or pneumococcic infections in mice, but is less effective than aureomycin. In experimental infections produced in mice by K. pneumoniae, it is slightly more effective than aureomycin or chloramphenicol.

Terramycin hydrochloride has proved effective in the clinical treatment of Rocky Mountain spotted fever, typhus, scrub typhus, primary atypical pneumonia, pneumococcic pneumonia, staphylococcic infections, Beta Hemolytic streptococcic infections, brucellosis and urinary tract infections produced by certain strains of E. coli, A. aerogenes, streptococci or staphylococci. It is not very effective for treatment of infections produced by Ps. aeruginosa, B. proteus, or organisms of the Salmonella group, and it is not effective in typhoid fever therapy. Although terramycin is beneficial in syphilis and gonorrhea, penicillin is the antibiotic of choice for the treatment of these infections. Terramycin may be used pre- and post-operatively in surgical procedures on the large bowel to suppress the normal colonic bacterial flora.

Suitably buffered preparations of terramycin hydrochloride may be used locally in the eye against certain ocular infections produced by susceptible bacteria. Terramycin hydrochloride is effective when applied topically in the treatment of early acute trachoma, but appraisal of its efficacy in comparison with other agents and in the later stages of this disease requires longer experience. The role of the drug in the control of other virus infections of the eye is being evaluated. A preparation of terramycin hydrochloride for intravenous administration is available for use in severe illnesses susceptible to the drug. Terramycin produces nausea, vomiting, diarrhea, skin rashes or drug fever in some patients. Because it actively suppresses the growth of many bacteria, terramycin permits their replacement by growths of yeast-like organisms; thus thrush or other forms of moniliasis may develop in patients receiving the drug.

Dosage.—Exact dosage schedules for terramycin are still being studied. It is recommended at present that moderately ill patients be given a daily oral dose based on 25 mg. per kilogram of body weight, while patients with severe illness may receive a total daily dose based on 50 mg. per kilogram of body weight. This total daily dose is administered in divided doses at six hour intervals. The total daily oral dose for infants and children is lower than in adults. In severe illness usually 40 mg. per Kg. of body weight is considered adequate.

For most acute infections 0.5 to 1.0 Gm. daily, administered intravenously every 12 hours, is considered adequate. In extremely severe infections a daily dosage not to exceed 2.0 Gm. may be used. In infants and children a total daily intravenous dose of 10 mg. to 20 mg. per Kg. of body weight can be administered. Intravenous therapy should not be used beyond the point at which the patient can accept oral medication, nor should the intravenous route be employed in the treatment of mild infections. The drug should not be administered subcutaneously or intramuscularly, but in highly localized infections, which cannot be penetrated by the blood stream, small quantities may be injected directly into the infected area.

Chas. Pfizer & Company, Inc., Brooklyn. U. S. Patent 2,516,080.

Capsules Terramycin Hydrochloride: 50, 100 and 250 mg.

Elixir Terramycin Hydrochloride: 30 cc. bottles. A flavored alcohol solution containing the equivalent of 50 mg. of terramycin as the hydrochloride in each cubic centimeter. The terramycin hydrochloride and diluent are packaged together in separate containers, to be mixed before use.

Terramycin Hydrochloride (Intravenous): Vials containing the equivalent of 0.25 gm. and 0.5 gm. of terramycin as the hydrochloride. Buffered with 0.23 gm. and 0.45 gm. of sodium glycinate, respectively.

Ophthalmic Ointment Terramycin Hydrochloride: 3.54 gm. tubes. An ointment containing 1 mg. of terramycin as the hydrochloride in each gram.

Ophthalmic Solution Terramycin Hydrochloride: Bottles containing the equivalent of 25 mg. of terramycin as the hydrochloride with 62.5 mg. of sodium chloride. Buffered with 25 mg. of sodium borate. To be diluted with 5 ml. of distilled water.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

The Council wishes to express its appreciation for the valuable cooperation of the Advisory Committee on Audiometers and Hearing Aids for its expert services. The Committee members are Drs. Gordon Berry, Richard K. Cook, Hallowell Davis, Kenneth M. Day, Edmund P. Fowler, Isaac H. Jones, Dean M. Lierle, M. H. Lurie, Douglas Macfarlan and C. Stewart Nash.

HOWARD A. CARTER, *Secretary.*

MINIMUM REQUIREMENTS FOR ACCEPTABLE PURE TONE AUDIOMETERS FOR DIAGNOSTIC PURPOSES

An audiometer is a device used to measure sensitivity of hearing. The particular type of audiometer with which this specification is concerned is the pure tone audiometer designed for general diagnostic use with individual subjects. This specification has been prepared with the objective that the measurements obtained on any audiometer shall truly represent a comparison of a person's auditory threshold at prescribed frequencies with the corresponding normal thresholds. A hearing test of a given person on all audiometers designed in accordance with the standards should yield substantially the same results when performed under similar conditions of ambient noise.

The normal threshold of hearing at a given frequency is the modal value of the minimum sound pressure, at the entrance to the external auditory canal, which at that frequency produces a sensation of pitch in a large number of normal ears of persons in the age group from 18 to 30 years, inclusive. The threshold of hearing is measured by presenting tones of successively greater or less intensity to a listener.

1. GENERAL REQUIREMENTS

(*a*) The audiometer shall be an electroacoustic generator, with associated earphone and bone conduction receiver, which provides pure tones of selected frequencies covering a considerable portion of the auditory range. The frequency and intensity shall be controllable. A device for interrupting the tone shall be provided.

(*b*) The audiometer shall operate by electrical power from one or more of the following sources: battery power supply, direct current at line voltage of 117 volts and alternating current at 60 cycles per second and 117 volts, or such supply as regional requirements demand. Tests for compliance with the requirements of section 2 shall be made at line voltages of 105 and 125 volts or at the extremes of the usable range of battery voltages recommended by the manufacturer or at the voltage required by regional demands. Tests for compliance with the requirement of sections 3, 4, 5, 6 and 7 shall be made at a line voltage of 117 volts or at the battery voltage recommended as operating voltage by the manufacturer.

(*c*) In a battery-operated instrument some means of determining when the loaded limiting battery voltage has been reached must be provided.

(*d*) The audiometer shall have a nameplate giving the manufacturer's name, the serial number, the voltage and frequency (or frequencies) of the power supply, and the power consumed by the audiometer.

(*e*) A spring headband shall be provided to hold the earphone or earphones firmly against the ear. Cushions and/or other coverings for the earphone and the spring tension shall be designed with due consideration of (1) acoustic seal, (2) comfort, (3) ease of rapid and accurate placement and removal, (4) ease of cleaning and (5) maintenance of the proper size of cavity for which the earphone is calibrated. If only one earphone is provided, a dummy earphone with proper cushion or covering to cover and close the opposite ear shall be provided and suitably marked. The headband shall be easily and rapidly adjustable to fit the heads of adults or children.

2. FREQUENCIES

(*a*) The audiometer shall produce at least the following definitely identified frequencies: 125, 250, 500, 1,000, 2,000 and 4,000 cycles per second for both air and bone conduction measurements, and also 8,000 cycles per second for air conduction measurements. Dials shall be marked so that frequencies in cycles per second can be easily read.

(*b*) Each frequency generated by the audiometer shall have a value within ±5.0 per cent of the corresponding frequency reading.

3. INTENSITY INTERVAL AND INTENSITY RANGES FOR AIR CONDUCTION

(*a*) The readings of the intensity dial or scale shall be hearing loss readings, i. e., when the intensity dial is set at zero the intensity of the tone produced shall be at the normal threshold of hearing for that frequency as defined in section 4*a*, and other readings shall indicate the ratio, expressed in decibels, of the intensity of the test tone to the corresponding normal threshold of hearing. Values of hearing loss for air and for bone conduction shall be clearly differentiated.

(*b*) Hearing loss readings shall extend from 10 decibels below threshold by intervals of 5 decibels or less up to at least the values given in table 1.

TABLE 1.—*Value for Hearing Loss Readings*

Frequency Reading in Cycles per Second	Hearing Loss Readings in Decibels Above Normal Threshold
125	65
250	80
500	85
1,000	95
2,000	95
4,000	90
8,000	75

(*c*) At each of the foregoing frequencies the measured difference (in decibels) of the intensity levels corresponding to any two graduations of the intensity dial shall agree with the indicated difference in hearing loss readings within 1.5 decibels. Thus for a 5 decibel interval on the intensity dial, the measured difference in intensity levels shall not be less than 3.5 decibels or more than 6.5 decibels. The difference in the intensity levels shall be determined by measurement of the voltage levels at the input of the earphone with the earphone coupled to the National Bureau of Standards Coupler 9-A or its acoustic equivalent.[1]

4. SOUND-PRESSURE OUTPUT OF THE EARPHONE

(*a*) The sound-pressure produced by the earphone at each hearing loss reading shall not differ from the indicated value, as referred to normal threshold, by more than 4.0 decibels at the indicated frequencies of 125, 250, 500, 1,000 and 2,000 or by more than 5.0 decibels at 4,000 and 8,000 cycles per second. Measurements of sound-pressure output shall be made with the earphone coupled to the National Bureau of Standards Coupler 9-A or its acoustic equivalent. The sound pressures in Coupler 9-A corresponding to normal threshold have been determined by the National Bureau of Standards for several types of earphones. For other types the methods of comparison advised by the National Bureau of Standards or specified by the American Standards Association, Inc., shall be employed. When an audiometer is submitted for acceptance the manufacturer shall inform the Council what type of earphone is employed. For Western Electric Type 705-A earphone the threshold pressures, determined by loudness balancing with the earphones used in the National Health Survey Hearing Study, are given in table 2.

TABLE 2.—*Threshold Pressures for Western Electric Type 705-A Receiver*

Frequency in Cycles per Second	Root-Mean-Square Sound Pressure in Decibels Above 1 Dyne/Cm.[2]
125	−19.5
250	−34.4
500	−49.2
1,000	−57.3
2,000	−57.0
4,000	−58.9
8,000	−53.1

(*b*) The normal thresholds for any indicated frequencies other than those listed in table 2 shall be obtained by graphic interpolation on a smooth curve drawn through the normal threshold values determined by the National Bureau of Standards for the appropriate type of earphone. If the National Bureau of Standards performs such an interpolation, the values which it derives shall be employed. If additional frequencies between 125 and 8,000 cycles per second are indicated as test frequencies, the standard of accuracy established in the first sentence of this section shall be maintained, i. e., ±4.0 decibels relative to the values given by the National Bureau of Standards for frequencies of 2,000 cycles per second or less and ±5.0 decibels for frequencies above 2,000 cycles per second. The manufacturer shall indicate clearly on the instrument that hearing loss readings for frequencies above 8,000 cycles per second are only rough approximations.

(*c*) The sound-pressure produced by the receiver at each specified frequency when the instrument is set to the 60 db. hearing loss readings shall not vary by more than ± 1 db. as the line voltage is varied through the range from 105 to 125 volts.

(*d*) The sound-pressure output of an audiometer shall be measured directly at the hearing loss settings of 60 decibels. It shall be measured with the receiver coupled to the National Bureau of Standards Coupler 9-A or its acoustic equivalent. If appropriate apparatus is available for measuring acoustic pressure down to 40 db. or less above 0.0002 dyne per square centimeter, the direct measurement of acoustic pressure is the preferred method for obtaining the sound-pressure output at other hearing loss settings. An alternative method is to combine the pressures measured at 60 decibels with the results of the measurements of hearing loss intervals.

(*e*) If two or more earphones, substantially similar in appearance and interchangeable in their connections, are furnished with a pure tone audiometer, each earphone must meet the "minimum requirements" even when connected to either output, if two outputs are provided. If a clear color code or else a connector that will not allow connection of an earphone to the wrong circuit is provided, the output of each earphone need meet the specifications of Section 4 only when the earphone is connected to its intended circuit.

5. PURITY OF TEST TONES OF THE EARPHONE

The sound pressure of the fundamental signal shall be at least 25 decibels above that of any harmonic when measured with the earphone coupled to the National Bureau of Standards Coupler 9-A or its acoustic equivalent. The harmonics shall be measured at the frequencies and hearing loss settings listed in section 3b, even though the manufacturer may provide a maximum intensity higher than is specified in that section.

6. NOISE

(*a*) The root-mean-square weighted sound pressure due to all frequencies except the signal frequency and its harmonics shall be either less than 1.0 by 10^{-3} dyne per square centimeter or at least 60 decibels below the sound pressure due to the signal frequency and its harmonics at all specifically designated frequencies and hearing loss dial settings. This measurement shall

1. The National Bureau of Standards Coupler 9-A has been used by audiometer manufacturers and the National Bureau of Standards as a standard coupler for many years. Its volume is approximately 6 cc. Recently the American Standards Association, Inc., has issued American Standard Z24.9-1949, in which a coupler designated American Standards Association Type 1 is recommended. Adaptation of the American Standards Association Type 1 Coupler, or of any other coupler, to the different earphones supplied by audiometer manufacturers involves research, and consequently the issuance of this standard would be delayed by one or more years, if any coupler other than No. 9-A were to be incorporated into the standard. The American Standards Association, Inc., plans to rewrite American Standard Z24.9-1949 as soon as the basic research has been completed. The industry and the requirements of the Council on Physical Medicine and Rehabilitation will then change gradually from the National Bureau of Standards Coupler 9-A to a standard coupler approved by the American Standards Association. The phrase "or its acoustical equivalent" in the present requirements is intended to include any standard coupler approved by the American Standards Association as a substitute for or replacement of the National Bureau of Standards Coupler 9-A.

be performed with the interrupter switch in the "off" position. The other conditions of this measurement and the relative weights employed in the calculation shall be those specified by the American Standards Association, Inc., for this purpose (American Standard Z24.9-1949 and American Standard for Audiometers for General Diagnostic Purposes, if and when adopted).

(*b*) If an audiometer is provided with two or more earphones the signal in any earphone for which the switch is set to "off" should be at least 10 db. below the normal threshold for a signal of that frequency. This test should be applied, by a listener (or listeners) with appropriately acute hearing, with the audiometer set for 60 db. hearing loss and at all of the frequencies specified in Section 2.

(*c*) Neither the bone conduction receiver nor any other part of the audiometer shall radiate sound to such an extent that the sound reaching the tympanum through the auditory meatus might influence the validity of the bone conduction measurement. As judged by an observer with normal hearing, the sound received at the ear by air radiation from the audiometer shall have a sensation level at least 5 decibels below the level which the receiver generates by bone conduction when in contact with the head.

This test of sound radiation from the bone conduction receiver shall be performed by determining the bone conduction threshold in the usual way, and then, with the bone conduction receiver held in approximately the same position as in the threshold measurement, but with the driver element or contact area of the receiver resting on the soft flesh at the end of the operator's finger and with coverage comparable to that provided by contact with the mastoid, the threshold at which any auditory sensation is perceived shall be noted. Care must be taken that no direct contact be made between the finger and skull. The threshold of auditory sensation shall be at least 5 decibels above the direct bone conduction threshold. A jury of at least six persons with hearing losses for air-borne sound not greater than 10 decibels at the frequencies employed shall perform the test and the mean of their results taken. The above test is not required at frequencies above 2,000 cycles per second.

7. TONE INTERRUPTER

An audiometer shall be equipped with a device for turning the tone on and off without introducing an objectionable click (i. e., transient extraneous frequencies, audible to a normal ear) in the receiver.

8. AUDIOGRAM BLANKS

If the manufacturer supplies with his instrument blanks for plotting measured hearing losses, these blanks shall comply with the following specifications: The blank shall be ruled with rectangular coordinates, with frequencies in cycles per second on a logarithmic scale as the abscissas and hearing loss in decibels on a linear scale as the ordinates. Frequencies shall be shown by vertical lines equally spaced at octave intervals. (For an instrument that produces test tones at intermediate frequencies, vertical lines to correspond to these frequencies should appear at the proper fractional parts of the octave intervals.)

Normal hearing for both air-borne and bone-conducted sounds shall be indicated by a single horizontal line marked 0 (zero), near the top of the blank. "Hearing loss in decibels" shall be indicated by horizontal lines, equally spaced at 10 decibel intervals and numbered downward from the 0 line. One octave on the frequency scale shall be the same distance as 20 decibels on the hearing loss scale.

9. SHOCK HAZARD

Audiometers shall be free from electric shock hazard. A shock hazard shall be considered to exist at an exposed live part if the open circuit potential is more than 25 volts and the current with a 1,500 ohm load is more than 5 millamperes.

10. GUARANTIES

The manufacturer shall make to the purchasers the following guaranties:

(*a*) Any defect other than those due to accident or damage from improper use that may appear within a period of one year from date of purchase will be corrected and the instrument recalibrated at no cost to the purchaser except for transportation charges; replaceable parts which may deteriorate with use, such as vacuum tubes, shall, by agreement, be supplied at reasonable cost.

(*b*) The maker will provide adequate instructions for the proper care and upkeep of his products and will encourage the purchaser to send his audiometer at reasonable intervals to the factory or to a qualified distributor for check as to performance and needed servicing at a reasonable cost.

11. MARKETING AND ADVERTISING

Rules of the Council on Physical Medicine and Rehabilitation shall be adhered to by manufacturers of acceptable audiometers.

Recommendations for Pure Tone Audiometers for Diagnostic Purposes

The following features are not required, but they are recommended for the guidance of manufacturers.

1. GENERAL

(*a*) Two earphones should be provided, and a switch on the operating panel that allows the operator to transfer the test tone from one ear to the other. Each of the two earphones should meet the requirements for accuracy of sound-pressure output.

(*b*) A battery-operated instrument should be provided with a device that will insure that the batteries are turned off when the instrument is closed or covered for transportation.

2. FREQUENCIES

If test tones in addition to the series 125, 250, 500, 1,000, 2,000, 4,000 and 8,000 are provided, the preferred frequencies are 1,500, 3,000, 6,000 and 12,000.

3. TONE INTERRUPTER

(*a*) The interrupter should operate either as normally "on" or normally "off" at the choice of the operator.

(*b*) The acoustic output should reach a level within 1 db. of its final level not sooner than 0.01 second and not later than 0.5 second after the interrupter switch is operated for "on." The output should not overshoot its final level by more than 1 db. The test tone should decay at least 20 db. and preferably more within 0.5 second after the interrupter switch is operated for "off."

4. BONE CONDUCTION THRESHOLDS

(*a*) A spring headband or other device for regulating the force of application of the bone conduction receiver to the mastoid is highly desirable.

(*b*) A recommended procedure for establishing the normal threshold of hearing for bone-conducted sound as measured by a particular audiometer is as follows: Determine at each frequency the intensity level, as measured by the hearing loss setting of the audiometer, which can just be heard when the bone conduction receiver is pressed firmly against the mastoid just back of the ear of each of 6 subjects with hearing losses at the frequencies employed of not more than 10 decibels by air conduction. The ear canal shall not be occluded during these measurements. The mean of the six measurements at any frequency is taken as the normal threshold for bone-conducted sound of that frequency. All measurements specified in this section are to be made in a room free from extraneous sound of sufficient intensity to vitiate the measurements. Acceptance tests on this requirement may follow the same procedure.

5. MASKING NOISE

Provision for masking noise is highly desirable. The noise should have a wide acoustic spectrum, at least from the lowest to the highest frequencies indicated for measurement of hearing loss by bone conduction. The noise should be delivered to the ear through an earphone and the intensity should be calibrated over a range of effective masking of at least 40 decibels. The loudest level should be about 60 db. above the level that in a normal ear will just mask a tone of threshold intensity at 1000 cps. (table 2). An intensity scale showing relative levels at five decibel intervals should be provided.

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THE NATIONAL FUND FOR MEDICAL EDUCATION AND THE AMERICAN MEDICAL EDUCATION FOUNDATION

Tremendous impetus was given to the movement to raise funds from private sources for the nation's medical schools by the public announcement on May 16, 1951, of the establishment of the National Fund for Medical Education. This important new organization is sponsored by outstanding leaders from the fields of public affairs, business, industry, agriculture, labor, higher education, and by the American Medical Association and the Association of American Medical Colleges. Its board of 66 distinguished trustees from all parts of the country has as honorary chairman former President Herbert Hoover and as president Mr. S. Sloan Colt, the president of Bankers Trust Company, New York. Its 20 man advisory council is comprised of leading university presidents and members of the Council on Medical Education and Hospitals of the American Medical Association and of the executive council of the Association of American Medical Colleges.

The objective of the Fund is to raise annually from voluntary sources substantial sums for the support of the nation's medical schools. Emphasis will be placed on securing contributions from corporations and organized groups, which, it is recognized, have to a large extent replaced individuals as the great potential sources of philanthropy in this country. The Fund has set a goal of $5,000,000 to be raised during its first year.

This expanded program to raise funds for the medical schools does not lessen in any way the urgent need for the medical profession's continuing its efforts through the American Medical Education Foundation. On the contrary, the profession's effort should be so vigorous and so successful as to constitute a challenge and example for all other groups.

At the annual meeting of the sponsoring groups at which the announcement of the National Fund was made, Dr. Elmer Henderson stated (see page 262 of this issue of THE JOURNAL) that the directors of the American Medical Education Foundation had voted to distribute through the National Fund the contributions received by the Foundation. The Fund has already received contributions from 18 of the leading life insurance companies and from many prominent industrial corporations. Combining these contributions with the sums already raised by the American Medical Education Foundation, which now total more than $630,000, means that the National Fund will begin its activities with resources of more than $1,000,000 already in hand. The Fund has announced that it plans to make its initial grants to the medical schools available immediately. With the guidance and assistance of the advisory council referred to above, the trustees of the Fund have set up appropriate machinery for distributing the money equitably among the nation's medical schools.

The story of the development of the National Fund for Medical Education is a thrilling demonstration of how an idea can be translated into effective action. In February 1948, at the Congress on Medical Education and Licensure, President Alan Valentine of the University of Rochester, in discussing the financial crisis facing the nation's medical schools, suggested that the raising of large numbers of small gifts could constitute one important method of meeting this crisis. In discussing this possibility, President Valentine said, "To inform and convince all American citizens of the needs of medical education will not be an easy or rapid achievement. I suggest that it could be done by an organized and continuous campaign on a national scale." He also advised, "Medical education should cultivate the friendship and further support of American business and industry."

President Valentine's words made a deep impression on the members of the Council on Medical Education and Hospitals and became a topic of continuous discussion during the months following his speech. In June, 1948, this Council with the approval of the Board of Trustees of the American Medical Association, suggested to the executive council of the Association of American Medical Colleges that the two councils jointly consider the possibility of organizing a campaign on a national scale of the type suggested by President Valentine. This suggestion was enthusiastically endorsed, and a meeting of the two councils with a group of leaders from business, industry, education, and the philanthropic foundations was held in New York City on July 22, 1948. As a result of this meeting, a committee was formed under the chairmanship of Mr. Earl Bunting, managing director of the National Association of Manufacturers, to explore specific ways by which such a campaign could be developed through the cooperative efforts of the medical profession, the medical schools, business and industry.

In the fall of 1948 a group of university presidents, under the leadership of President Conant of Harvard and of General Eisenhower of Columbia, began independently to explore the possibilities of developing a similar campaign. When the two groups learned of each other's activities, arrangements were made early in 1949 for both groups to confer on the possibility of combining forces. Agreement on a combined effort was quickly reached, and at this meeting was born the National Fund for Medical Education. Within the next few weeks a large group of distinguished leaders in American life accepted invitations to serve as trustees, and the Fund was formally incorporated in the spring of 1949.

At the first meeting of the Fund's trustees, in May 1949, it was agreed that no public announcement of the Fund should be made until the Fund was fully organized and until a substantial nucleus of contributions had been secured. Initial support to finance the organization and

preliminary activities of the National Fund was provided by the following organizations: The American Medical Association, The George F. Baker Trust, The Carnegie Corporation of New York, The Commonwealth Fund, The Albert and Mary Lasker Foundation, The Lilly Endowment, The Josiah Macy, Jr. Foundation, The John and Mary R. Markle Foundation, the Davella Mills Foundation, The New York Foundation, The Sarah Mellon Scaife Foundation and the Rockefeller Foundation. To date the funds provided by these organizations have carried the entire administrative costs of the National Fund, making it possible for every dollar contributed to the Fund to flow directly to the medical schools. In the two years since the Fund was incorporated, its trustees and staff have worked methodically and tirelessly to lay the basis for a successful undertaking. The public announcement of the Fund earlier this week marks the end of the preliminary period devoted to organization and planning and the securing of sufficient initial support to insure its success. The Fund is now ready to enter its second phase, that of conducting an intensive campaign on a national scale to achieve its first year's goal of five million dollars.

In anticipation of the day when the medical profession would be called on to make its contribution to the National Fund along with business, industry, agriculture, labor, and others, the American Medical Association last December appropriated $500,000 as a nucleus for the amount to be raised by the medical profession in 1951. A few weeks later the Association sponsored the establishment of the American Medical Education Foundation to provide an instrument whereby individual physicians and state and county medical societies could make their contributions.

The campaign to raise funds from private sources for the medical schools has now been launched on a broad national basis. All organizations, groups and individuals throughout the country who have a concern for the welfare of the nation's medical schools have a vehicle through which they can make their contribution to solve the needs of the medical schools on a national basis. The character and accumulated experience and wisdom of the board of trustees and advisory council of the Fund and the breadth with which they represent American life assure that contributions to this Fund will be used wisely and effectively to promote the best interests of medical education and the country as a whole.

It may reasonably be estimated that if the National Fund and the American Medical Education Foundation can furnish the medical schools with five million dollars of additional operating funds during 1951, a solution will have been found to many of the schools' major problems. If double this sum can be raised, a not unreasonable goal for future years, the pressing needs of most schools, except for funds for construction, should be well met. These are realistic goals that the medical profession and the other influential groups in American society who are sponsoring the National Fund should be capable of meeting.

The medical profession is urged to make an immediate and intensive effort to make its total contribution to the 1951 fund a sum sufficiently large to indicate to all concerned that the profession recognizes and is willing to meet its responsibility in this combined effort to aid the medical schools. It is suggested that the profession should accept as its minimum goal for 1951 the sum of one million dollars.

In addition to making their own contributions, physicians can render important service to this effort by encouraging the officers of companies and corporations with whom they are acquainted to contribute to the National Fund.

Physicians should continue to make their contributions to the American Medical Education Foundation and send them to the Foundation at 535 N. Dearborn St., Chicago 10. A convenient subscription form together with additional information concerning the Foundation and the National Fund will be found on pages 32 and 33 of the advertising section of this issue of THE JOURNAL. Contributions to the Foundation will be turned over in lump sums to the National Fund, which, in an effort to keep its overhead expenses at a minimum, does not desire to assume the responsibility of handling individual contributions. Physicians may continue to designate the school to which they wish their contributions to go, since full and adequate provision for handling such requests and for notifying the schools of the names of contributors and the amounts contributed have been included in the arrangements between the National Fund and the Foundation.

Since most schools will begin their next fiscal year on July 1, 1951, it is the aim of both the National Fund and the Foundation to secure as much as possible of the 1951 fund for distribution to the schools by that date. The next six weeks, therefore, are important ones, and those physicians who have not already contributed to the American Medical Education Foundation are urged to do so within that period.

CONGENITAL SYPHILIS

The twenty-seventh Annual General Assembly of the International Union Against Venereal Disease [1] has drawn up several postulates regarding the mode of transmission of syphilis from parents to offspring: 1. Syphilis is transmitted from the mother to the offspring by the transplacental route. The passage of spirochetes across the chorionic villi takes place after the fifth month of pregnancy. 2. Direct infection of the ovum by the sperm is unlikely. 3. The so-called spirochetal granules represent a developmental stage common to all spirochetes. The assembly also recommended that the term "hereditary syphilis" be replaced by the term "congenital syphilis."

Levaditi and Vaisman,[2] although in agreement with the above postulates, point out that Mayer has reported two instances in which Treponema pallidum was found in the chorionic villi of an aborted fetus, one four months and one three months old. These, however, appear to be exceptional instances. Levaditi and Vaisman point out

1. Union Internationale contre le Péril Vénérien, XXVII[e] Assemblée Générale Annuele, Zurich, 28 juillet-1[er] août 1950, La Prophylaxie Antivénérienne **22**: 513 (Nov.) 1950.

2. Levaditi, C., and Vaisman, A.: La Transmission de la Syphilis des Procréateurs aux Rejetons, Presse méd. **59**: 201 (Feb. 17) 1951.

that Finger and Landsteiner injected spermatic fluid from a syphilitic patient into scarified skin of a Cynocephalus hemadrias and of a Macacus rhesus and observed formation of a chancre after three weeks. These experiments suggest that the spermatic fluid of a syphilitic patient may under certain conditions harbor a specific pathogenic virus for the monkey. Levaditi and his co-workers at the Institute Alfred-Fournier and Institute of Hygiene (Paris) demonstrated that the testis, the tunica albuginea, the epididymis and the sperm of rabbits rendered syphilitic by the corneal route may contain, in the absence of any microscopic alteration of these tissues and of the spermatic fluid, a syphilitic virus as demonstrated by corneal injections into other rabbits. The spermatozoa of rabbits infected with syphilis of long standing proved capable of transferring the infection after incubation periods of 51 to 73 days. These authors conclude that the parenchyma of the testicle and of the testicular adnexa, rarely in man but frequently if not constantly in the rabbit, harbors a syphilitic virus demonstrable by transference to a rabbit or a monkey.

It has not been possible to demonstrate typical spirochetes in the sperm, the seminal glands and testicular appendages of man, despite the demonstrated specific virulence of these tissues. It has been suggested, therefore, that these tissues harbor a syphilitic virus beyond the capacity of a microscope to disclose. The germinal transmission of syphilis from the male parent to the offspring appeared to be at least hypothetically possible.

The connective tissue of the ovary and of the ovocytes of infants born to syphilitic mothers were frequently found to be invaded by spirochetes. The spirochetal invasion of the ovocytes of newborn syphilitic offspring, however, does not offer an argument either for or against germ infection. The case probably is one of massive spirochetal septicemia, the ovary being infected much as the rest of the organs of the fetus. The fact that an ovocyte may be penetrated by a spirochete does not establish that this may actually occur at the moment of fecundation.

The question of the existence of a developmental cycle of the syphilitic virus was suggested by the finding of the so-called spirochetal granules. A number of investigators have called attention to the existence of these granules, which can be demonstrated with the electron microscope. Hampp and his associates [3] have demonstrated, with the aid of an electron microscope, the presence of internal granules, end granules and external granules in various types of spirochetes, including those of two cultured strains of Treponema pallidum. The electron micrographs, according to these investigators, demonstrate that free granules are definitely a phase in the development of spirochetes. The free granules consist for the most part of what appear to be short sections of spirochetes closely packed together. Levaditi and Vaisman believe that the developmental cycle of the syphilitic virus consists of successive phases oscillating between the ultramicroscopic state and that of the spiral form. The granules may represent a latent stage that assures the preservation of the virus during the interval required for the development of a florid infection. This in turn suggests that infection of spermatozoa and of ova by the virus in the stages difficult of demonstration is at least probable.

The placental transmission of the maternal spirochetes and the infection that follows it in the offspring are a matter of common observation. There is as a rule a massive invasion of the fetal and maternal placenta and particularly of the liver of the fetus by the maternal spirochetes. The specific infectivity of the parents, particularly that of the mother, is not, however, incompatible with an apparently normal offspring. The spirochetes are rarely found in the organs of a fetus of less than five months. This fact suggests that the virus is not capable of passing the placental barrier until a late stage, namely, at the moment when this barrier has undergone certain anatomic and biologic changes. Such changes have been established by histological studies. They are to be noted in the chorionic villi after the fourth and the fifth month, particularly in the cells of Langhans and in the syncytium. These changes are in the nature of involution. The formation of definite gaps in the villi probably favors the passage of the spirochetes across the placental barrier.

3. Hampp, E. G.; Scott, D. B., and Wyckoff, R. W. G.: Morphologic Characteristics of Certain Cultured Strains of Oral Spirochetes and Treponema Pallidum as Revealed by the Electron Microscope, J. Bact. **56**: 755 (Dec.) 1948.

DETERMINATION OF GASTRIC ACIDITY WITHOUT INTUBATION

Segal and his associates recently described a test for determining the presence or absence of free hydrochloric acid in the stomach without subjecting the patient to intubation.[1] The principle of the test lies in the use of a cation exchange resin to which is attached a special indicator cation that can be readily identified when it is released from the compound by an ion exchange reaction. Clinical trials have been based on administration of a quininium exchange indicator compound prepared by subjecting an acid-conditioned cation exchange resin to a solution of quinine hydrochloride. By this treatment, quinine replaces the hydrogen cations of the carboxylic acid groups present in the resin. If free hydrochloric acid is present in the stomach, the quinine will be replaced by hydrogen ions and the liberated quinine will be absorbed into the body and can later be detected in the urine. Smaller amounts of quininium cations may be displaced by the cations present in the secretions of the small intestine. However, these quininium cations can be differentiated from those displaced by the hydrogen ions in gastric juice by the time of appearance and the amount of quininium cations in the urine.

This procedure is more pleasant for the patient than the conventional intubation method. Its simplicity suggests its usefulness as a screening test to select achlorhydric subjects in the gastric cancer age group for further investigative studies.

1. Segal, H. L.; Miller, L. L., and Morton, J. J.: Proc. Soc. Exper. Biol. & Med. **74**: 218 (May) 1950. Segal, H. L.; Miller, L. L.; Morton, J. J., and Young, H. Y.: Gastroenterology **16**: 380, 1950. Segal, H. L.: M. Clin. North America **35**: 593 (March) 1951.

ORGANIZATION SECTION

RESOLUTIONS TO BE PRESENTED TO HOUSE OF DELEGATES

The Secretary of the Association has been informed that the following resolution will be introduced in the House of Delegates at Atlantic City by Dr. James P. Wall, delegate from Mississippi:

RESOLUTION ON DEATH OF DR. ROY W. FOUTS

Life, with its ever changing cycle, brings experiences of varied kinds—some fraught with gladness, others laden with sadness. Man has a time to come and a time to go, yet his tenure is commensurate not with years spent, but rather in deeds wrought. In the course of human events the passing from God's footstool is to be expected, and though mindful of the immutability of such a law, mere mortals are never prepared for the inevitability of this denouement. It is true that posthumous glory soon sinks into forgetfulness, it is equally true that a good man lives long after he has dropped into the tongueless silence of a dreamless sleep.

An estimate of one's character is very apt to be biased by personal relation and association, and a true evaluation is merged into the maze of circumstance and lost in the exigencies of time. Nevertheless, there has come to this House of Delegates the grim realization that it suffered a great sorrow when death came, as it must come to all, to Dr. Roy W. Fouts on March 27, 1951.

Dr. Fouts was all the term "gentleman" connotes. Gentle, without fear; meek, without repining; modest, without prudery; gifted, without pedantry and friendly, without effusion. No one ever had the temerity to question his motives, impugn his integrity, asperse his character or doubt his courage. Unswayed by popular clamor he kept the even tenor of his way, possessed of a fine intellect, a wonderful calmness, a rare poise, a kindly disposition, an unusual sense of humor, a clear understanding of his vocation and a due appreciation of the weightier matters of life.

As a member, Vice Speaker and Speaker of the House of Delegates of the American Medical Association, he was at all times considerate of the rights of others, fair in his rulings and impartial in the conduct of these offices. As Vice President of the American Medical Association, being a firm believer in the righteousness of its cause, he worked in and out of season to promote those standards that have made American medicine the standard of the world.

Though not unmindful that expressions of condolence often fall far short of their intended meaning and that many times words of sympathy are mere emptiness, this House, knowing Dr. Fouts as it did, knows it has suffered a great loss, and it is seeming and fitting at this time that it should take cognizance of the passing of our confrere; therefore be it

Resolved, By the House of Delegates of the American Medical Association in Annual Session in Atlantic City, New Jersey, June 11, 1951, that in the slipping away of Dr. Roy W. Fouts this body has lost a stalwart defender of its most precious tenets; organized medicine, a warrior worthy of his steel; the community an upright citizen, and the Healing Art, an exponent of whom it may truly be said: "He was a workman that needeth not be ashamed"; and be it further

Resolved, That a copy of these resolutions be forwarded to the family of our deceased comrade and friend.

The following resolutions will be presented by delegates of the Ohio State Medical Association:

RESOLUTION ON ABOLISHMENT OF "FELLOWSHIP" IN THE AMERICAN MEDICAL ASSOCIATION

Whereas, There is confusion, misunderstanding and criticism among many members of the American Medical Association regarding "Fellowship"; and

Whereas, In the opinion of many members, "Fellowship" is now unnecessary inasmuch as all active members of the American Medical Association are now provided with issues of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and permitted to attend sessions of the American Medical Association as a part of their membership privileges; and

Whereas, Many active members believe that payment of special "Fellowship dues" should not be required of an active member in order for him to become eligible to be a program participant or to serve in the House of Delegates or as an official of the American Medical Association; and

Whereas, The relationship between the American Medical Association and its members would be improved by establishing a single membership classification which would entitle all members to uniform and equal benefits and privileges; and

Whereas, The contention that "Fellowship" is necessary in order to give the American Medical Association certain control over matters of professional conduct and ethics is untenable for the reason that a physician who is unworthy of "Fellowship" is, and should be considered, unfit for membership; therefore be it

Resolved, That the House of Delegates of the American Medical Association in annual session in Atlantic City, June 11 to 15, 1951, favors the elimination of that classification of members known as "Fellowship" and instructs the Board of Trustees to prepare appropriate amendments to the Constitution and By-Laws for action by the House of Delegates at the next session of the American Medical Association.

RESOLUTION ON DISSEMINATION OF HEALTH INSURANCE NEWS

WHEREAS, Extension of voluntary health insurance is a most important part of the program of the American Medical Association; and

WHEREAS, Other groups active in this field have the advantage of coordination on a nation-wide level, while the medical profession's activities are planned and implemented in state and county medical societies; and

WHEREAS, There is no present medium whereby significant progress in this field is brought promptly to the attention of practitioners and to their representatives responsible for fostering and extending voluntary insurance; now, therefore, be it

Resolved, That the American Medical Association arrange for regular dissemination of health insurance news in a publication of the American Medical Association.

RESOLUTION ON DISTRIBUTION OF INTERNS

WHEREAS, The continuing unequal distribution of interns between the university and non-university hospitals is becoming more glaringly apparent, the university hospitals have one intern to each 21½ beds while the non-university hospitals have only one intern to every 60 beds; and

WHEREAS, The non-university hospitals are caring for 75% of the total patients at present and would be called on to shoulder an even larger percentage of the case load in event of a civilian disaster; and

WHEREAS, This situation of intern shortage in the non-university hospitals has been referred to a committee of the American Medical Association for study and remedial recommendations; and

WHEREAS, To date there have been no suggested methods of relief forthcoming from this committee; therefore be it

Resolved, That the American Medical Association Committee on Training of Interns expedite the preparation of a report containing practical suggestions toward the immediate solution of this critical intern problem.

RESOLUTION ON DISSEMINATION OF FACTUAL INFORMATION PERTAINING TO THE PRACTICE OF MEDICINE

WHEREAS, False and misleading information is being disseminated in popular magazines regarding the practice of medicine in hospitals and the policies of the American Medical Association; be it hereby

Resolved, That the American Medical Association be requested to take immediate steps to inform and educate effectively the public, hospital trustees and the medical profession as to the facts pertaining to the practice of medicine in hospitals and the American Medical Association principles governing the same.

RESOLUTION REQUESTING THAT AMERICAN MEDICAL ASSOCIATION PLANS BE PUBLICIZED

WHEREAS, The prospect of an insufficient number of physicians to serve the people of the United States in the next ten to twenty years has been given widespread publicity through newspapers and magazines and by radio; and

WHEREAS, The reasons for predicting a shortage of doctors as outlined in these various articles appear reasonable and understandable because of the arguments presented; and

WHEREAS, The American Medical Association is accused of obstructing plans for increasing the training program for physicians; therefore be it

Resolved, That the American Medical Association prepare specific replies to these arguments, pointing out in detail the plans the Association has to combat or forestall the anticipated shortage and, furthermore, that efforts be made to have statements on this question publicized by the press and radio for the purpose of acquainting the public with the American Medical Association plans.

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, APRIL 14, 1951

Legislation.—The Board approved the following actions of the Committee on Legislation: S. 1043, S. 1257, H. R. 2831, H. R. 3029 and H. R. 3197, supported; S. 1140, disapproved.

Appointments.—Dr. E. E. Irons was selected to appear on the television program "The March of Time Through the Years" to discuss the film entitled "Men of Medicine," which was made in 1938.

Mr. Howard O. Brower of the staff of the Council on Medical Service was appointed to attend the Health and Accident Underwriters Conference in Detroit, May 14-16.

Drs. L. H. Bauer and Rustin McIntosh were selected to represent the American Medical Association on the American Council on Rheumatic Fever.

Dr. James C. Sargent, Dr. E. S. Hamilton, Dr. Joseph Lawrence and Mr. C. Joseph Stetler were appointed to attend the Civil Defense Conference in Washington, D. C., May 7-8.

Dr. Joseph Lawrence represented the Association at the National Conference on United States Foreign Policy in Washington, D. C., May 2-4.

Fred V. Hein, Ph.D., of the headquarters staff and Dr. Cyrus Maxwell of the Washington Office of the American Medical Association were appointed to attend the Conference on Elementary Education in Washington, D. C., April 30, May 1 and 2.

Dr. James R. Wilson, Secretary of the Council on Foods and Nutrition, was authorized to accept appointment as liaison representative of the Association to the Food and Nutrition Board of the National Research Council and to attend the spring meeting in Washington, D. C., May 4-5.

Publication of Book "School Health Services."—The Board authorized the development and publication, under the auspices of the American Medical Association, of a book entitled "School Health Services."

Inaugural Meeting.—Arrangements for broadcasting the Inaugural Meeting of the American Medical Association on Tuesday evening, June 12, in Atlantic City were approved by the Board.

Dates for Annual Sessions.—The dates for the 1952 and the 1953 Annual Session of the Association were set as follows: Chicago, June 9-13, 1952; New York, June 1-5, 1953.

Public Relations.—The following representatives of state medical societies were appointed to serve on an advisory committee for the Director of the Department of Public Relations of the Association:

Mr. Charles S. Nelson, Executive Secretary, Ohio State Medical Association, Columbus, Ohio.

Mr. Ray E. Smith, Executive Secretary, Indiana State Medical Association, Indianapolis.

Mr. Harvey T. Sethman, Executive Secretary, Colorado State Medical Society, Denver.

Mr. Hugh W. Brenneman, Public Relations Counsel, Michigan State Medical Society, Lansing.

Mr. John Hunton, Executive Secretary, California Medical Association, San Francisco.

Mr. Richard H. Graham, Executive Secretary, Oklahoma State Medical Association, Oklahoma City.

Mr. Charles H. Crownhart, Secretary, State Medical Society of Wisconsin, Madison.

Mr. Frederick W. Miebach, Director, Public Relations Bureau, Medical Society of the State of New York, New York.

The first meeting of the Committee will be held in Atlantic City on June 10.

Hospital Standardization.—The Board voted to refer to the House of Delegates in June a complete report on the hospital standardization program which has been discussed at various meetings of representatives of the American Medical Association, the American Hospital Association, the American College of Surgeons and the American College of Physicians.

American Medical Directory.—Several matters pertaining to the publication of the Nineteenth Edition of the American Medical Directory were considered and the Board voted to omit the medical laws, to increase the price from $20.00 to $25.00 on orders received before publication and from $25.00 to $30.00 on orders received after publication and to authorize a re-evaluation of all listings of societies.

Nurse Recruitment Program.—An official statement of support from the American Medical Association of the United States Army nurse recruitment program was approved.

MERGE FUNDS TO AID MEDICAL SCHOOLS

Address by Dr. Elmer L. Henderson, President, American Medical Association, Before Annual Meeting of The National Fund for Medical Education, New York City, May 16, 1951

Mr. Colt, President Hoover, Members of the Board of Trustees, Distinguished guests:

The medical profession of the United States is proud of the high quality of medical education that has been achieved in this country in the last fifty years through the combined efforts of our great private universities, our state and local governments, philanthropic foundations, individual benefactors and the profession itself. By insisting on the importance of an intensive educational program that is both practical and theoretical, that provides intimate contact between teacher and student and that is stimulated and supported by scientific curiosity and research, this country in the short space of fifty years has advanced from a greatly inferior station to a position of world leadership in medical education.

The medical profession regrets, as do many others, that the financing of our medical schools has become such a serious problem for our universities and those responsible for our universities.

While many individual members of the medical profession have in the past contributed generously either in time or money or both to the support of the medical schools with which they have been associated, the needs of the medical schools today have so increased that it has become clear that more general and systematic support on the part of the profession is urgently needed.

It was for this purpose that the American Medical Association last December sponsored the establishment of the American Medical Education Foundation and appropriated $500,000 as the initial contribution to the Foundation's 1951 fund. Additional contributions are now being solicited from individual members of the profession and from state and county medical societies. This Foundation gives those of us in the medical profession an instrument through which we can do our part toward insuring that those of future generations who will come forward to take our places will have the best preparation possible for their important work.

It makes me very happy to report to you today that the Directors of the American Medical Education Foundation have voted to merge the funds they collect with those of the National Fund for Medical Education for distribution by the National Fund to the medical schools.

Because of rising costs, inflation, fewer large individual benefactions and reduced income from endowments, the medical schools need, without further delay, assistance of the type this voluntary fund can give.

We have felt that merging the contributions of the Foundation with those of the Fund was the best way that we could demonstrate to the nation the importance which we attach to the National Fund for Medical Education and the confidence that we have in its distinguished Board of Trustees. We of the profession have the highest hopes for the success of the National Fund and we want you to know how deeply appreciative we are that you should interest yourselves so actively and enthusiastically in a problem which concerns us so closely. We pledge that we shall not relax our efforts to secure through our Foundation ever increasing support from the medical profession for this important undertaking. We hope that you will be successful in winning similar support from many other groups in our society and that through the combined efforts of all of us, a truly great National Fund will be developed that will permanently insure for the American people the benefits of a superior program of medical education.

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

The American College of Surgeons for more than 25 years has administered a successful hospital standardization or accreditation program, developing standards, inspecting hospitals and approving those hospitals which met minimum standards. Because of the expanding scope and requirements of this program during the intervening years, its financing has become more and more demanding.

In the fall of 1950 the American College of Surgeons invited representatives of the American College of Physicians, American Hospital Association and American Medical Association to meet with representatives of the American College of Surgeons to discuss the establishment of a joint hospital accreditation program. After frequent meetings over a period of six months, the details of a plan for such a joint program were adopted unanimously by this conference committee. Representatives of each of the four organizations were designated as a subcommittee of four to prepare this statement for publication.

There follows an outline of the basic pattern of the proposal for a joint hospital accreditation program as worked out by the large committee and recommended to the four organizations.

The proposal provides for the establishment of a Joint Commission on Accreditation of Hospitals. Members of the commission will be the constituent organizations, each of which will be represented by appointees of its choice. Basically the commission will be composed of three representatives of the American College of Physicians; three representatives of the American College of Surgeons; six representatives of the American Hospital Association, and six representatives of the American Medical Association. The exact composition of the commission, however, will depend on the acceptance of an invitation to participate to be extended to the Canadian Medical Association. Since both Colleges and the American Hospital Association number Canadian members in their organization, it was the consensus of the conferees on the interim committee that Canadian interests in these fields would be represented by their parent organizations, but that the medical profession in Canada as a whole might desire representation similar to that proposed for the American Medical Association. If the invitation to participate is accepted by the Canadian Medical Association, the appointment of commissioners among the constituent organizations will be adjusted to provide such representation.

The Joint Commission on Accreditation of Hospitals will formulate standards, determine the type and scope of inspections, allocate hospitals for inspection to the several participating organizations, maintain records, and award all certificates of accreditation. It will be the sole and final authority on these matters. The commission will employ a small staff to be directed by a physician, preferably one experienced in hospital administration.

Except in unusual or controversial cases, the staff of the commission will make no inspections. Inspections will ordinarily be made by the field staffs of constituent organizations and may be combined with other inspections made by these organizations for other purposes, such as approval for intern and resident training.

All inspections for the purposes of hospital accreditation under this program will be made and reported in a uniform manner to be determined by the commission, and such reports of inspection will be evaluated by the staff of the commission and acted upon by the commission itself. There will be no interference with other types of inspections made by the constituent organizations.

The budget of the commission will be met by the constituent organizations in the same proportion as their representation on the commission. The initial annual budget has been estimated at approximately $70,000. Additional expenses will be borne by the constituent organizations for financing field staff work and other activities incidental to the maintenance of necessary inspection records required for the conduct of special approval programs conducted by constituent organizations.

The Regents of the American College of Physicians and the American College of Surgeons have approved the proposal for the establishment and financing of the Joint Commission on Accreditation of Hospitals. The authoritative body of the American Medical Association will meet to consider the proposal in June 1951. Similar consideration of the proposal will be given by the American Hospital Association at its annual meeting in September 1951.

ATLANTIC CITY SESSION

Program to Start Monday Morning

The first scientific meeting of the General Assembly at the Atlantic City Session is scheduled for 2:00 p. m. on Monday, June 11, but physicians who are in Atlantic City on Monday morning will find plenty to interest them. Convention Hall will be open at 8:30 a. m. with more than 355 exhibits in the Technical Exposition and 298 exhibits in the Scientific Exhibit.

The television program begins at 9:00 a. m. with a large number of receivers on the Lower Level of Convention Hall, adjoining the Scientific Exhibit.

The motion picture program starts at 9:30 a. m. in Rooms A and B on the main floor of Convention Hall, a carefully selected list of films being shown in the two rooms simultaneously.

Question and answer conferences on diabetes and on overweight are scheduled for 10:00 a. m. in the Scientific Exhibit, the programs of each one continuing throughout the day, including the noon hour.

General Registration at Convention Hall will begin Sunday, June 10, at 10:00 a. m. and will continue daily thereafter beginning at 8:30 a. m. Physicians who are in Atlantic City on Sunday are urged to register then, to avoid the rush on Monday.

FEDERAL LEGISLATION

Physically Handicapped

Representative Rogers of Massachusetts introduced H. R. 3848, and Representative Madden of Indiana introduced H. R. 3902. These two bills are identical with 11 others which would establish the Federal Agency for Handicapped and define its duties. All have been referred to the House Committee on Education and Labor. Hearings have not yet been scheduled.

MEDICAL NEWS

ARKANSAS

Councilor District Program.—The First Councilor District of the Arkansas Medical Society conducted a program May 24 at Tyronza. Among the speakers were:

William R. Brooksher, Fort Smith, Bulwark of Free Medicine, the County Medical Society.
Robert L. Sanders, Memphis, What's New in Surgery.
The Hon. Sidney S. McMath, Little Rock, The Medical Center in Arkansas.
Louis A. Krause, Baltimore, What's New in Medicine.

The dinner address was given by Dr. Krause on "Medicine and Surgery in The Bible." The meeting was attended by representatives of the American Academy of General Practice, Southern Medical Society, Mid-South Post Graduate Assembly, Texas Medical Society, editors of the *Arkansas Gazette* of Little Rock, *Commercial Appeal* of Memphis, and *The Mississippi Doctor* of Booneville, Miss. The women were addressed by Robert C. Grier, president of Erskine College, Due West, S. C., on "Woman's Place in a Changing World."

CALIFORNIA

Dr. MacPherson Heads Medical College.—Dr. Walter E. MacPherson, Los Angeles, president of the College of Medical Evangelists from 1942 to 1948, has been elected again to head the institution. He will replace Dr. George T. Harding, who succeeded Dr. MacPherson in 1948. Dr. MacPherson has been serving as dean and vice president of the college. Dr. Harold Shyrock, Loma Linda, has been advanced from associate dean to dean of the college, and Dr. Varner J. Johns, Los Angeles, has been named associate dean. All are alumni of the College of Medical Evangelists. Dr. Harding will return to the presidency of Harding Sanitarium at Worthington, Ohio.

DISTRICT OF COLUMBIA

Anniversaries of Veteran Physicians.—When Dr. Edward Y. Davidson celebrated his ninetieth birthday on April 10, the Medical Society of the District of Columbia participated in the anniversary by calling on him at his home and bringing the attention of its membership to the occasion. Dr. Davidson is the oldest practicing physician of the society, which is indebted to him for, among other things, having taken a major part in the erection of the society's home in 1921. The society has already recognized his services by establishing the Davidson Lecture (1929), and his portrait, presented a few years ago by his friends, hangs in the board room. Dr. Francis A. St. Clair will reach his ninetieth birthday July 12 of this year, and several others will celebrate this anniversary in the next one or two years. The society will take due recognition of the occasions.

Personals.—Dr. Edward B. Tuohy of the Georgetown Medical Center, Washington, D. C., was elected a director of the American Board of Anesthesiology at a meeting in Coronado, Calif., on April 6. Dr. Tuohy will represent the Section on Anesthesiology of the American Medical Association and is replacing Dr. Henry S. Ruth of Philadelphia, who resigned as a director of the board April 6. Dr. Tuohy's term will expire at the annual meeting of the board in October 1955.——Dr. Fred L. Soper, director, Pan American Sanitary Bureau, regional office of the World Health Organization, recently visited Bogotá, Colombia, to confer with health authorities of that republic on plans for international collaboration in the production of yellow fever vaccine. Dr. Soper left Washington May 12 for Geneva, Switzerland, to attend the fourth World Health Assembly.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

FLORIDA

Society News.—At the annual spring meeting of the Florida Radiological Society Dr. John J. McGuire, Pensacola, was elected president; Dr. Thomas H. Lipscomb, Jacksonville, vice president, and Dr. Nelson T. Pearson, Miami, secretary-treasurer.

IDAHO

State Medical Meeting in Sun Valley.—The 59th annual meeting of the Idaho State Medical Association will be held at Sun Valley June 18 to 20 under the presidency of Dr. Russell T. Scott, Lewiston. Guest speakers and their papers are as follows:

Harry H. Gordon, Denver, Modern Trends in Infant Feeding; Some Problems in the Care of Premature Infants; Iso-Immunization, and Treatment of Acute Rheumatic Carditis, Including Hormone Therapy.
Donald G. Tollefson, Los Angeles, Practical Problems in Obstetrics; Practical Problems in Gynecology.
Demid L. C. Bingham, Kingston, Ont., Canada, Chronic Venous Insufficiency; Obliterative Peripheral Arterial Diseases; Carcinoma of the Rectum and Colon, and Surgery of the Sympathetic Nervous System.
Curtice Rosser, Dallas, Texas, Diverticulitis; Bizare Tumors of the Rectum; Management of Common Ano Rectal Lesions, and Pruritis Ani.
George W. Thorn, Boston, Clinical Evaluation of ACTH and Cortisone; Treatment of Uremia; Treatment of Gout, and Treatment of Thyrotoxicosis.
John Z. Bowers, Salt Lake City, Some Aspects of the Atomic Bomb.

Sun Valley has excellent facilities for golf, fishing, horseback riding, tennis, swimming, ice-skating and summer skiing in the mountains.

ILLINOIS

Hospital Intern Day.—Representatives of 33 hospitals in Illinois accepted the invitation of the University of Illinois College of Medicine on May 2 to discuss with third-year students the merits and virtues of their hospitals from the standpoint of internships. The students were excused from their classes to participate in the program. Plans for Hospital Intern Day were formulated after Dean Stanley W. Olson had received a number of letters from hospitals requesting that they be given permission to send a representative to talk to students who will be applying for internships in the near future.

Conference on Human Behavior.—Problems related to human behavior will be explored May 17 to 19 at a conference at Northwestern University in connection with the school's centennial. About 30 anthropologists, psychologists, sociologists, and psychiatrists will participate. The conference is supported through a $2,000 gift from the Viking Fund of New York. At the one public session, at 8:30 p. m. Thursday, Ralph Linton, Ph.D., Sterling professor of anthropology at Yale University, New Haven, Conn., and Dr. Richard S. Lyman, professor and chairman of the neuropsychiatry department at Duke University, Durham, N. C., will discuss "What We Know and What We Don't Know About Human Behavior," each from the point of view of his own field. The program for the closed working sessions will cover: (1) methods of approach to human behavior; (2) factors in the development and structure of personality; (3) the mentally abnormal and the culturally deviant; (4) nature of society and culture, and (5) summary sessions. Participants in the three-day working sessions will include Dr. Otto Klineberg, professor of psychology at Columbia University, New York; Dr. Clara M. Thompson, practicing psychiatrist in New York and member of the board of trustees, William Alanson White Psychiatric Foundation, Washington, D. C.; John P. Gillin, Ph.D., professor and chairman of the department of anthropology, University of North Carolina, Chapel Hill; Dr. L. Bryce Boyer, practicing psychiatrist, Langley Porter Clinic, San Francisco; Orval H. Mowrer, Ph.D., research professor of psychology, University of Illinois, Urbana, and Dr. Thomas M. French and Dr. Charlotte G. Babcock, Institute of Psychoanalysis, Chicago.

Chicago

Narcotic Violation.—Dr. Delbert Ross Blender, 536 North Rush St., pleaded guilty in the Northern District of Illinois to an indictment charging a violation of the federal narcotic laws and on April 20 was sentenced to a term of one year and one day.

Personal.—Mr. Lawrence C. Salter, first director of Press Relations at the headquarters of the American Medical Association, has been named secretary of the Playtex Park Research Institute, Dover, Del., recently founded as a public service by the International Latex Corporation of Dover for the purpose of supporting research in the field of pediatrics. He will reside in New York.

Michael Reese Institute and Conference.—Michael Reese Hospital's $2,000,000 Institute for Psychosomatic and Psychiatric Research and Training will be dedicated at ceremonies June 2 at 3 p. m. Top ranking state and city officials and other civic leaders will officiate. Dr. Roy R. Grinker, director of the institute, stated that patients will be transferred from the present 22 bed psychiatric unit in the private pavilion to the new institute on June 4. The five-story building has a capacity of 82 patients. The new institute is the first major hospital building for patients to be completed in the long-range enlarged medical center plans of Michael Reese Hospital. Funds for the institute have been provided by the Jewish Federation of Chicago; Mr. and Mrs. Albert D. Lasker, New York; Mr. and Mrs. Leigh Block, Chicago, and Mr. and Mrs. Sidney Brody, Beverly Hills, Calif. A tunnel system connects the institute with the main hospital buildings a block north. The foundations were laid with a view to considerable expansion in the future, when two new floors will be added. One third of the beds will be for service cases, part pay or no pay. The research program is supported by a fund created by the Lasker family and supplemented by private donors and government subsidies. There are facilities for research, teaching and care of patients. About 20 per cent of the space has been set aside for research. One of the prime purposes of the institute is the teaching of much-needed trained personnel: resident physicians training to become psychiatrists, medical students, social workers, nurses, occupational therapists, psychologists, interns, residents and staff doctors in other specialties on the Michael Reese staff. The institute has four divisions: the psychosomatic division, the division for psychiatric patients, the division for child care and a special division for disturbed patients. The official dedication of the new institute will be preceded by a conference June 1 on "Some Aspects of Mid-Century Psychiatry." Visiting participants will include:

George L. Engel, University of Rochester (N. Y.) School of Medicine and Dentistry, Homeostasis, Behavioral Adjustment and Disease.
David Levy, Columbia University College of Physicians and Surgeons, New York, Observational Methods in Psychiatry.
Charles Johnson, Fiske University, Nashville, Tenn., Sociology.

INDIANA

Conference on Industrial Vision.—Purdue University, Lafayette, will conduct a conference on industrial vision June 4 to 5 at which the university staff will present a summary of its research in this field during the past 12 years. Subjects under discussion will be the background and development of the tests, necessary research underlying an industrial vision program, requirements of instruments, measuring of job success, results of the programs to be discussed by Dr. Helwig H. Kuhn, Hammond, Ind., and a review of one specific vision program in a radio manufacturing company. The program will end with a panel discussion on industrjal vision. For information address Dr. Joseph Tiffin, Division of Education and Applied Psychology, Purdue University, Lafayette, Ind.

Personals.—Gov. Henry F. Schricker has appointed Mr. Ray E. Smith, executive secretary of the Indiana State Medical Association, a member of the Indiana Council of Mental Health.——Dr. Herbert S. Gaskill, professor of psychiatry at the Indiana University School of Medicine, Indianapolis, has returned from a month's assignment in Japan as a consultant on psychiatry with the Army Medical Corps.——Dr. Matthew Winters, Indianapolis pediatrician, has resigned as director of pediatric services at Riley Hospital for Children, Indianapolis, after serving in this capacity 20 years. For having supervised the care of an estimated 60,000 children during this period.

LOUISIANA

State Medical Meeting.—The annual meeting of the Louisiana State Medical Society was held at the Hotel Roosevelt in New Orleans May 7 to 9 under the presidency of Dr. George W. Wright, Monroe. The program was divided into section meetings at which the guest speakers were Dr. Axel N. Arneson, St. Louis; Dr. James Marvin Baty, Boston; Dr. Justin J. Cordonnier, St. Louis; Dr. Louis J. Gariepy, Detroit; J. D. Grey, D.D., New Orleans; Dr. Seale Harris, Birmingham, Ala.; Dr. George R. Herrmann, Galveston, Tex., and Dr. Fred W. Rankin, Lexington, Ky. The Honorable Otto E. Passman, Monroe, gave the address at the public meeting on Monday evening.

MICHIGAN

Symposium on Endocrinology.—The annual All Day Clinic of the St. Clair County Medical Society will be held June 5 at the Black River Country Club in Port Huron. This clinic is to be a symposium on endocrinology. Speakers include Dr. Robert B. Greenblatt, professor of endocrinology of the Medical College of Georgia, Augusta; Dr. Warren O. Nelson, professor of anatomy at the University of Iowa, Iowa City, and Dr. Edward E. Henderson, medical director of the Schering Corporation in Bloomfield, N. J. The program will start at 10 a. m. and will continue into the evening with an open panel discussion on the problems of endocrinology. Dr. Edgar C. Sites, Port Huron, is chairman-director of the program. His offices are in the Michigan National Bank building, Port Huron.

MISSOURI

University ECA Teaching Program.—Chancellor Arthur H. Compton announced in April the signing of a contract between Washington University School of Medicine, St. Louis, and the Economic Cooperation Administration of the United States government to put into action a cooperative teaching program between the school of medicine and the two medical schools of Thailand, or Siam, in Bangkok. With grants-in-aid for a two year period, staff members of the school of medicine will establish residence in Bangkok to teach in the two medical schools there, and a number of Thailand doctors will in turn come to Washington University Medical Center for advanced training and study. The program is to include an exchange of nurses, medical technicians and nurse anesthetists as well as physicians. Such a cooperative teaching program is an active part of the United States technical and economic assistance program administered by ECA and represents a new aspect of United States foreign policy in the effort to contain communism by strengthening the free nations of the world. Faculty members will come from both the preclinical and clinical medical departments and from the School of Nursing of Washington University. At least six staff members are to be in residence at Bangkok for one year periods. They will teach medical students and hospital interns and residents much as is done in this country and where advisable will offer suggestions for reorganizing departments. At the end of the first year these staff members will return, and others from the university will take their places, thus establishing continuity for a long-range program. It is expected that the exchange will be put into effect in May or early June. In addition to the one year tours of duty, there will be shorter periods wherein specialists will conduct refresher courses for Thailand doctors. Dr. Ben Eiseman, instructor in surgery at the school of medicine, left in April to spend six weeks teaching surgery as well as making preliminary arrangements to get the exchange program under way. Dr. Clifford Read Boles, assistant in clinical pediatrics, plans to leave this summer for a three month tour teaching pediatrics in the medical schools and hospitals. In effect, the school of medicine will "adopt" the two medical schools and their affiliated schools of nursing at Bangkok, the Siriraj Medical and Nursing School and the Chulalongkorn Hospital Medical and Nursing School. These are the only medical schools in the country. During the past two years the Washington University has had from four to seven faculty members from the Bangkok medical schools as postgraduate students.

NEW YORK

Postgraduate Lectures.—On May 16 Dr. Joseph L. Morse, assistant clinical professor of dermatology and syphilology, New York University Post-Graduate Medical School, New York, delivered a postgraduate lecture for the Orange County Medical Society in the Horton Memorial Hospital Nurses' Home in Middletown. His subject was "Common Skin Diseases: Diagnosis and Treatment."

New Mental Hospital.—Early in April patients moved into the 120-bed infirmary recently completed in Letchworth Village. It is the first building to be completed in the 125 million dollar construction program of the New York State Department of Mental Hygiene. The second infirmary at Letchworth Village was completed in April, and two others are expected to be ready for patients by the end of June. These four new infirmaries will increase the total capacity of Letchworth Village by 480 beds. The department's building program will provide a total of 9,500 additional beds in 13 institutions.

New York City

Harlem Hospital Tumor Conference.—The last of the Harlem Hospital Tumor Conferences for this season will take place May 23 at 11 a. m. at the hospital. Dr. Virginia Kneeland Frantz, associate professor of surgery, Columbia University College of Physicians and Surgeons, will speak on "I-131 Therapy in Thyroid Cancer." The conference is open to the profession.

Herter Lecture.—Sir Charles Harington, Ph.D., director of the National Institute for Medical Research, London, England, delivered the 48th annual Christian A. Herter Lecture at New York University College of Medicine May 7 on "Experimental Research—Work in Chemotherapy." The Herter Lectureship was established in 1904 by Dr. Christian A. Herter, former professor of chemical pathology, to provide annual lectures on advances in medical science.

Municipal Hospitals' Lay Advisory Boards.—To bring the 32 municipal hospitals and their communities closer together the medical superintendent of each institution will set up a lay advisory board comprised of representative members of the community. The new program has been designed by the city department of hospitals. Each board will be a collaborating organization serving in an advisory capacity to the medical superintendent. Several hospitals have already set up their boards of 12 or 13 members. Discussions at regular meetings will be scheduled on institutional problems.

NORTH CAROLINA

Personal.—Norman F. Conant, Ph.D., professor of mycology, Duke University School of Medicine, Durham, will lecture at Scandinavian medical centers this spring. He will spend two months in Europe speaking on mycology at the invitation of Dr. Arvid Lindau, professor of bacteriology, at the Bakteriologiska Institutionen, Lund, Sweden. Dr. Conant, director and founder of the Duke Fungus Registry, one of the world centers of diagnosis and study of fungus disease, will speak at university medical centers at Lund, Stockholm, Upsala and Gothenburg, Sweden, and at Copenhagen, Denmark.

Physician Named Mother of the Year.—Dr. Mary T. Martin Sloop, Crossnore, was named American mother of 1951 by the American mothers committee of the Golden Rule Foundation, which is devoted to the welfare of mothers and children. Dr. Sloop, known as the "grand lady of the Blue Ridge," won the award for her work with mountain children. She founded the Crossnore School for Underprivileged Children and has been credited with bringing good roads, modern farming methods, religious tolerance, a hospital and dental clinic, and vocational instruction to Avery County. The committee said more than 5,000 letters were written in her behalf, including letters from governors and senators. Dr. Sloop, the wife of a country physician, Dr. Eustace H. Sloop, and the mother of two children, also physicians, was one of 52 mothers nominated by committees in every state, the District of Columbia, Alaska, Hawaii, and Puerto Rico.

PENNSYLVANIA

State Allergy Meeting.—The spring session of the Pennsylvania Allergy Association is being held at Galen Hall, near Wernersville, beginning the afternoon of May 18 through May 20. Original papers and panel discussions of various aspects of allergy are being presented by Dr. Harold Abramson, New York; Dr. Joseph H. Fries, Brooklyn; Dr. Jerome Glaser, Rochester, N. Y.; Dr. Townsend W. Baer, Edward Claus, Ph.D., and James Mansmann, Wilkensburg; Drs. Jean Crump, and Harrison F. Flippin, Philadelphia; Drs. Philip M. Gottlieb, Harry L. Rogers, and Harry P. Schenck, Philadelphia; Dr. James M. Flood, Sayre; Dr. Luther J. King, Meadville; Dr. Stephen D. Lockey, Lancaster, and Dr. Joseph F. Ricchuiti, Pottsville.

Philadelphia

Borden Award in Nutrition.—The 1951 Borden Award in Nutrition was presented to Dr. Paul Gyorgy, professor of nutrition in pediatrics, University of Pennsylvania School of Medicine, and chairman of the research council of Wyeth Incorporated, at the annual meeting of the American Institute of Nutrition in the Cleveland Hotel May 1. Wendell H. Griffith, Ph.D., president of the institute, presented the check for $1,000 and a gold medal to Dr. Gyorgy "in recognition of distinguished research which has emphasized the nutritive significance of the components of milk."

Society News.—Dr. Richard J. Bing, associate professor of surgery and assistant professor of medicine at Johns Hopkins University in Baltimore was the guest lecturer at the annual meeting of the Undergraduate Research Society of Hahnemann Medical College May 9. He spoke on "The Coronary Circulation in Health and Disease as Studied by Coronary Sinus Catheterization."

SOUTH CAROLINA

State Medical Meeting.—The South Carolina Medical Association met at the Ocean Forest Hotel in Myrtle Beach May 15 to 17 under the presidency of Dr. Wilbur R. Tuten of Fairfax. Guest speakers included:

Iredell M. Hinnant, Cleveland, Drug Therapy in Allergic Disease.
Harry S. Mustard, New York, The Changing Picture in Epidemiology.
W. Paul Sanger, Charlotte, N. C., Dangers of Symptomless Intrathoracic Lesions.
J. Grafton Love, Rochester, Minn., Dumbbell Neurofibromas Involving the Spinal Cord and Nerve Roots (so-called hourglass tumors).
H. F. Sharpley Jr., Savannah, Ga., Scopolamine in Obstetrics.

TENNESSEE

Memorial to Dr. Wittenborg.—The anatomy building at the University of Tennessee medical units will be named for Dr. August Hermsmeier Wittenborg at formal dedicatory services to be held during the June commencement. Dr. Wittenborg joined the staff of the old College of Physicians and Surgeons as an instructor in physiology in 1911. In 1912 when the college merged with the University of Tennessee College of Medicine, Dr. Wittenborg became the head of the department of anatomy, and with the organization of the faculty into divisions in 1925 he became chief of the division of anatomy. Dr. Wittenborg served as dean of the college of medicine from 1917 to 1919 and was acting dean for three months in 1921. He died in Ann Arbor, Mich., Aug. 21, 1941.

TEXAS

Dr. Viets Made University Lecturer.—Dr. Henry R. Viets of Boston, Chairman of the Council on Scientific Assemblies of the American Medical Association, has accepted appointment as lecturer in neurology and in historical and cultural medicine at the University of Texas Medical Branch, Galveston. Dr. Viets plans to spend a week each semester in Galveston for lectures and conferences with the staff and students.

Expedition to Colombia.—In association with the Museum of Natural History of Houston, the University of Texas Medical Branch, Galveston, will participate in a scientific expedition to the Republic of Colombia for the collection of insect vectors for tropical disease. Dr. Ludwik Anigstein and Don W. Micks, D.Sc., of the department of preventive medicine and public health are planning to make the trip.

UTAH

Ogden Surgical Society.—The meeting of the Ogden Surgical Society will be held in Ogden with headquarters at the Hotel Ben Lomond May 23-25 under the presidency of Dr. Frank K. Bartlett, Ogden. Guest speakers include:

Arthur W. Allen, Boston, The Problem of Gastric Ulcer and Cancer.
Arthur R. Colwell, Chicago, Surgical Complications of Diabetes Mellitus.
Gilbert J. Thomas, Sawtelle, Calif., Tumors of the Testicle.
Richard B. Cattell, Boston, Present Status of Surgery of the Pancreas.
Edmund B. Spaeth, Philadelphia, Senility and Senescence in Ophthalmology.
Winchell McK. Craig, Rochester, Minn., Painful Syndromes Caused by Intra-Spinal Lesions Simulating Other Conditions.
Paul W. Schafer, Kansas City, Kans., Diagnosis and Management of Minimal Chest Injuries.
John Z. Bowers, Salt Lake City, Peace Time Application of the Products of Atomic Energy.
Keith S. Grimson, Durham, N. C., Surgical Treatment of Hypertension.
Charles E. McLennan, San Francisco, Cancer of the Endometrium.
Alton Ochsner, New Orleans, Post Operative Care.
Guy A. Caldwell, New Orleans, End Results of Lumbosacral Spine Fusion.

There is no registration fee for physicians, medical students, and guests.

VERMONT

Annual Clinical Meeting.—The annual May clinical meeting of the University of Vermont College of Medicine, sponsored by the Vermont State Medical Society, will be held in Burlington May 24. It is planned especially for physicians in general practice and has been extremely well received for a number of years. Chairman of the committee is Dr. Platt R. Powell, Burlington. There will be no registration fee, as this is looked on as an integral part of the society's annual program. The papers are prepared and presented by the faculty of the college of medicine as a service to the physicians of the state.

WASHINGTON

Rabies.—The Washington State Department of Health in a follow-up report on an outbreak of rabies in dogs in Spokane states that the source of infection of the first case was not found. From March 10 to April 21 a total of 14 dogs and one cat in Spokane were proved to have rabies as well as one additional animal in the county and also one in the adjoining county of Whitman, near the Idaho-Washington boundary line. Five persons have been bitten by rabid animals. A definite pattern of geographic spread has been noted in Spokane.

GENERAL

Chemistry Society Award.—Dr. Arthur Kornberg, senior surgeon in the division of biochemistry of the U. S. Public Health Service, Bethesda, Md., received the $1,000 Paul-Lewis Laboratories Award for enzyme chemistry at the Boston meeting of the American Chemical Society April 2. The award, which includes a gold medal, was made to Dr. Kornberg in part because of new clues he discovered to the mechanism by which sugars and starches are transformed in the living body.

Congress of Electro Radiologists.—This congress will be held in Brussels, Belgium, July 23-28 under the presidency of Professor Maisin. The general discussion topic will be nontuberculous chronic articular lesions. The congress will include a section on radiobiology, radiodiagnosis, radiotherapy, electrotherapy and radiologic physics. The Secretariat of the Congress is at the Maison des Médecins, 54, Boulevard de Waterloo, Bruxelles, Belgium.

American Dermatological Association.—This association will hold its 75th anniversary meeting at the Homestead, Hot Springs, Va., May 23 to 26 under the presidency of Dr. Henry E. Michelson, Minneapolis. Subjects under discussion include: attempt to demonstrate antibodies in eczematous contact-type dermatitis: a preliminary report; treatment of parapsoriasis with vitamin D_3, antibiotic activities of a member of the actinomyces group against certain pathogenic fungi; skin changes in low-voltage roentgen ray irradiation, and treatment of pyodermas: a comparative study with several new antibiotic agents. The association banquet will be held May 23 at 7 p. m.

Fund to Aid Medical Students.—The first meeting of the Joseph Collins Foundation, a million dollar fund to provide for the needs of medical students, was held in New York April 24. Dr. L. Beverley Chaney, an executor of the Collins estate, was elected president of the new foundation (THE JOURNAL Aug. 26, 1950, p. 1505). The fund is expected to yield $50,000 a year. The board has elected to concentrate at first on tuition scholarships only for 50 students annually. Grants will be restricted to young men and women who have been accepted for medical college. Headquarters of the foundation will be at the office of Willkie, Owen, Farr, Gallagher & Walton, 15 Broad St., N. Y. Dr. Collins had expressly stated that the students to be aided by the fund should come preferably from state or small eastern colleges and not Yale, Harvard or Princeton.

Rockefeller Foundation Grants.—The Rockefeller Foundation made grants totaling $1,481,718 during the first quarter of 1951. The largest of the medical grants include the following: $100,000 over a five year period to the University of Oregon Medical School, Portland, for studies in constitutional medicine; $50,000 to Columbia University, New York; $30,000 to Tufts College, Medford, Mass., and $12,000 to the University College in Dublin, Ireland, for studies in biochemistry; $42,000 to Columbia University for research in immunochemistry, and $22,500 to Dalhousie University, Halifax, Nova Scotia, for the study of psychological factors in pregnancy. Other grants to medical services include $50,000 to the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, for studies of genetic factors of intelligence and emotional variation in mammals; $27,300 to the University of Minnesota, Minneapolis, for research in human genetics; $19,500 to the University of Oslo, Norway, to aid in establishing a research laboratory of respiratory physiology.

Conference of Medical Presidents.—The annual meeting of the Conference of Presidents and Other Officers of State Medical Associations will be held at the Rose Room of the Traymore Hotel, Atlantic City, N. J., on the afternoon of June 10. Dr. Julian P. Price, Florence, S. C., is president of the conference; Dr. W. Andrew Bunten, Cheyenne, Wyoming, president-elect, and John E. Farrell, Sc.D., Providence, R. I., secretary-treasurer. The program includes addresses as follows: "A Physician Views Medicine," Dr. W. Andrew Bunten of Cheyenne, Wyo.; "An Editor Views Medicine," Edwin F. Abels of Lawrence, Kan., editor of the Lawrence *Outlook*, and past president of the National Editorial Association; "A Clergyman Views Medicine," the Most Reverend John J. Wright, D.D., Ph.D., Roman Catholic Bishop of the Diocese of Worcester, Mass.; "A Legislator Views Medicine," by The Honorable Richard M. Nixon, senator from California. The meeting is open to all physicians. Since the County Society Officers Conference is not to be held this year, county society officers in particular are invited.

American Heart Association Meeting.—The annual meeting of the American Heart Association will be held in Atlantic City, N. J., June 6 to 10 at Haddon Hall Hotel. The scientific sessions are scheduled for June 8 and 9. Chairmen of each of the four sessions include Dr. Howard B. Sprague, Boston, president of the American Heart Association; Dr. E. Cowles Andrus, Baltimore, chairman, program committee; Dr. T. Duckett Jones, New York, chairman of the American Council on Rheumatic Fever, and Dr. Arthur C. Corcoran, Cleveland, a member of the section on circulation of the scientific council. The annual dinner on Saturday will feature the presentation of Gold Heart Awards to physicians who have made outstanding contributions in advancing cardiovascular medicine and the program of the association. The American Council on Rheumatic Fever of the American Heart Association, composed of representatives of 12 national voluntary health agencies interested in this phase of cardiovascular disease, will hold its annual meeting on Sunday. The committee on cardiovascular clinics will hold its annual meeting on Friday evening to consider applications for the American Heart Association's Certificate of Approval given to those clinics meeting certain standards of service to heart patients. Preceding the annual meeting, June 3-5, a training institute will be held at the Hotel Morton for the executive staff of affiliated heart associations. The annual meeting of the staff conference of heart associations, composed of executive secretaries and other staff members of affiliates, will be held June 5.

Foundation to Evaluate Industry's Medical Services.—The American Foundation of Occupational Health is taking over on May 1 the evaluation of medical services in industry, which has been conducted by the American College of Surgeons for the past 20 years. The foundation is setting up a board of governors to guide in the new project. On this board will be three representatives each from the Industrial Medical Association (formerly the American Association of Industrial Physicians and Surgeons) and from the group of donors to the project; two from among outstanding business executives, and one each from the American College of Surgeons, American College of Physicians, American Medical Association, American Academy of Occupational Medicine, Association of American Medical Colleges, Association of American Schools of Public Health, and the Industrial Hygiene Foundation. The trustees of the American Foundation of Occupational Health are the president, secretary, and managing director of the Industrial Medical Association. Dr. Edward H. Carleton, medical director of Inland Steel Company, is the immediate past president and Dr. Adolph G. Kammer, South Charleston, W. Va., is the new president, installed at the annual meeting in Atlantic City late in April; Dr. Arthur K. Peterson, Chicago, medical director of R. R. Donnelley and Sons Company, is the secretary, and Dr. Edward C. Holmblad, Chicago, is the managing director and treasurer. The trustees propose to continue the same type of plant evaluation and approval that the American College of Surgeons has conducted. On its last approved list of medical services in industry, published on Dec. 31, 1950, the college includes the names of 1,459 industrial establishments, 63 per cent of the 2,293 plants, representing over 6,045,000 employees that had been surveyed. Dr. Gaylord R. Hess, Chicago, who has been in charge of the activity for the college, will continue to direct it for the American Foundation of Occupational Health.

Conference on Health Education.—Sponsored by the American Association for Health, Physical Education and Recreation and the Office of Education, this conference in Washington, D. C., March 19 to 21 was attended by representatives from some 60 organizations including the American Medical Association. The section on health education included consideration of health instruction, health services and healthful living for school and college children and youth. In general, conclusions were based on a philosophy that no radical changes are needed in what appears to be a long-term emergency; rather it is essential to do better the things long recognized as desirable in promoting the health of children and youth. Periodic medical examinations at about three year intervals for the school child, beginning with an examination on or before entrance to school, were recommended. Emphasis was placed on encouraging parents to have the examinations made by their own family physician, and it was suggested that priority should be given to the entrance examination. The importance of arranging for prompt examination of children who appear to have something wrong with their health was stressed. It was pointed out that cooperation between school nurses, teachers and other school personnel may result in much saving of physician time by singling out those children who need referral. The school's task in following up health needs was defined as one of stimulating parents to provide needed corrective and preventive measures and of sharing in community efforts to assure services for children whose parents cannot afford them. Recognition was given to the need for adjustment of teaching methods, seating arrangements and programs of children undergoing medical treatment. There was agreement on the importance of making suitable arrangements for meeting emergencies, which would involve providing first aid care, notification of parents and transporting ill or injured pupils when necessary. In the matter of control of communicable disease the need for cooperation with the local health department was stressed. The conference has been commended for its clear delineation of the functions of medical, educational and public health personnel in developing its suggestions on health services for school youth.

CORRECTION

Present Day Management of Amebiasis.—In Dr. Hamilton H. Anderson's discussion of the paper by this title in THE JOURNAL, March 17, 1951, page 789, the word "directly" in the tenth line from the bottom of this discussion should be "indirectly."

MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, June 11 to 15. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

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ALASKA TERRITORIAL MEDICAL ASSOCIATION, Ketchikan, May 31-June 2. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY, Hotel New Yorker, New York, May 21-26. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Atlantic City, June 7-10. Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Atlantic City, June 10. Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN DERMATOLOGICAL ASSOCIATION, The Homestead, Hot Springs, Va., May 23-26. Dr. Louis A. Brunsting, 102 Second Ave., S.W., Rochester, Minn., Secretary.

AMERICAN DIABETES ASSOCIATION, Chalfonte-Haddon Hall, Atlantic City, June 9-10. Dr. John A. Reed, 11 W. 42d St., New York 18, Secretary.

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Hotel Claridge, Atlantic City, June 16-17. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION, Atlantic City, June 8-9. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

AMERICAN GERIATRICS SOCIETY, Hotel Brighton, Atlantic City, June 7-9. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

AMERICAN GOITER ASSOCIATION, Deshler-Wallick Hotel, Columbus, Ohio, May 24-26. Dr. George C. Shivers, 100 E. St. Vrain St., Colorado Springs, Colo., Secretary.

AMERICAN HEARING SOCIETY, Palmer House, Chicago, June 29. Mrs. Frances E. Lee, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Hotel Dennis, Atlantic City, June 9-10. Dr. Mildren C. J. Pfeiffer, Woman's Medical College of Pennsylvania, Philadelphia 29, Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Atlantic City, June 18-20. Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, The Greenbrier, White Sulphur Springs, W. Va., June 7-9. Dr. Maynard C. Wheeler, 30 W. 59th St., New York 19, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, The Greenbrier, White Sulphur Springs, W. Va., June 20-23. Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Atlantic City, June 7-10. Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Ohio, Secretary.

AMERICAN RADIUM SOCIETY, Atlantic City, June 6-9. Dr. John Wirth, U. S. Marine Hospital, Baltimore, Secretary.

AMERICAN RHEUMATISM ASSOCIATION, Hotel Dennis, Atlantic City, June 8-9. Dr. Charles Ragan, 620 W. 168th St., New York 32, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Ritz-Carlton Hotel, Atlantic City, June 9-10. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

AMERICAN THERAPEUTIC SOCIETY, Atlantic City, June 8-10. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

AMERICAN UROLOGICAL ASSOCIATION, Palmer House, Chicago, May 21-24. Dr. Charles H. deT. Shivers, Boardwalk National Arcade Bldg., Atlantic City, N. J., Secretary.

ASSOCIATION FOR THE STUDY OF INTERNAL SECRETIONS, Chalfonte-Haddon Hall, Atlantic City, June 7-9. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, Convention Hall, Philadelphia, June 2-5. Mr. M. R. Kneifl, 1402 S. Grand Blvd., St. Louis 4, Executive Secretary.

CONFERENCE OF PRESIDENTS AND OTHER OFFICERS OF STATE MEDICAL ASSOCIATIONS, Hotel Traymore, Atlantic City, June 10. Mr. John E. Farrel, 106 Francis St., Providence 3, R. I., Secretary.

GREAT FALLS MEDICAL-SURGICAL CONFERENCE, Great Falls, Montana, June 25-26. Dr. William E. Sullens, Box 1066, Great Falls, Chairman.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 17-20. Dr. Robert S. McKean, 305 Sun Building, Boise, Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 22-24. Dr. Harold M. Camp, 224 S. Main St., Monmouth, Secretary.

MAINE MEDICAL ASSOCIATION, Poland Spring House, Poland Spring, June 17-19. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 22-24. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

MEDICAL LIBRARY ASSOCIATION, Denver, June 28-30. Miss Caroline Riechers, Rush Medical College Library, 1758 W. Harrison St., Chicago 12, Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Bismarck, May 19-22. Dr. O. A. Sedlak, 702 First Ave. S., Fargo, Secretary.

OKLAHOMA STATE MEDICAL ASSOCIATION, Mayo Hotel, Tulsa, May 21-23. Mr. R. H. Graham, 1227 Classen St., Oklahoma City, Executive Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Ritz-Carlton Hotel, Atlantic City, June 7-8. Dr. Herman Beerman, 255 S. 17th St., Philadelphia, Secretary

SOCIETY FOR VASCULAR SURGERY, Chalfonte-Haddon Hall, Atlantic City, June 10. Dr. George D. Lilly, 333 Ingraham Bldg., Miami 32, Fla., Secretary.

SOCIETY OF AMERICAN BACTERIOLOGISTS, Chicago, May 28-June 1. Dr. John E. Blair, 1919 Madison Ave., New York 35, Secretary.

SOCIETY OF BIOLOGICAL PSYCHIATRY, Claridge Hotel, Atlantic City, June 17. Dr. George N. Thompson, 1136 W. Sixth St., Los Angeles 17, Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Aberdeen, June 2-6. Dr. Roland G. Mayer, 22½ S. Main St., Aberdeen, Secretary.

INTERNATIONAL

EUROPEAN CONGRESS ON RHEUMATISM, Barcelona, Spain, Sept. 24-27. Dr. Gunnar Edström, Lund, Sweden, Secretary.

GENERAL PRACTITIONERS STUDY CLUB INTERNATIONAL, Rome, Italy, Sept. 12-15. Dr. John O'Connell, 10300 Lackland Road, St. Louis 14, Mo., U. S. A.

INTERNATIONAL ACADEMY OF PROCTOLOGY, Atlantic City, N. J., U. S. A., June 7-8. Dr. Alfred J. Cantor, 43-45 Kissena Blvd., Flushing, New York, Secretary.

INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, London, England, Sept. 3-7. Mr. R. W. Cope, University College Hospital, London W.C.1, England.

INTERNATIONAL ASSOCIATION OF ALLERGISTS, Zurich, Switzerland, Sept. 23-29. Prof. A. S. Grumbach, Hygiene Institut der Universitaet Zurich, Gloriastr. 32, Zurich, Switzerland.

INTERNATIONAL CONGRESS OF ANESTHESIOLOGY, Nursing School of the Salpiettre, 47 Boul de l'Hospital, Paris, France, Sept. 20-22. 12 rue de Seine, Paris 6e, France, Secretariat.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, London, England, July 16-20. Dr. W. H. McMenemey, Maida Vale Hospital for Nervous Diseases, London W.9, England, Secretary.

INTERNATIONAL CONGRESS OF GYNECOLOGY, Maison de la Chimie, Centre Marcellin, Paris, France, June 23-29. Dr. Maurice Fabre, 1, rue Jules-Lefebvre, Paris IX, General Secretary.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, Mexico City, Mexico, Dec. 11-19.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Paris, France, June 17-23. Physician General Dutrey, 8, bis, rue de Recollets, Paris X, Secretary General.

INTERNATIONAL CONGRESS OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Stockholm, Sweden, May 21-25. Dr. Anders Karlen, Karolinska Instituts Ortopediska Klinik, Stockholm, Secretary.

INTERNATIONAL EXHIBITION OF MEDICAL ARTS, Turin, Italy, May 30-June 12. Prof. S. Teneff, Palazzo della Exposizioni al Valentino, Turino, Italy.

INTERNATIONAL GERONTOLOGICAL CONGRESS, Hotel Jefferson, St. Louis, Mo., U. S. A., Sept. 9-14. Dr. John E. Kirk, 5600 Arsenal Street, St. Louis 9, Mo., Chairman, Program Committee.

INTERNATIONAL HOSPITAL CONGRESS, Brussels, Belgium, July 15-21. Capt. J. E. Stone, 10 Old Jewry, London E.C., England, Secretary.

INTERNATIONAL POLIOMYELITIS CONGRESS, Copenhagen, Denmark, Sept. 3-7. Prof. Dr. Niels Bohr, Statens Seruminstitut, 80 Amager Blvd., Copenhagen S., Denmark, President.

INTERNATIONAL SOCIETY OF ANGIOLOGY, Claridge Hotel, Atlantic City, N. J., U. S. A., June 9. Dr. Henry Haimovici, 105 E. 90th St., New York 28, Secretary.

INTERNATIONAL SOCIETY OF SURGERY, Paris, France, Sept. 24-29. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, Secretary General.

INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, Fifth World Congress, Stockholm, Sweden, Sept. 9-14. Mr. Donald V. Wilson, 54 E. 64th St., New York 21, N. Y., U. S. A., Executive Director.

PAN PACIFIC SURGICAL ASSOCIATION CONGRESS, Honolulu, Hawaii, Nov. 7-19. Dr. Forrest J. Pinkerton, Suite 7, Young Bldg., Honolulu, Hawaii, President.

STUDENTS' INTERNATIONAL CLINICAL CONGRESS, Leyden, Utrecht, Groningen and Amsterdam, Holland, July 10-28. N. A. M. Bergstein, Oude Gracht 143 bis, Utrecht, Holland, Secretary General.

WORLD CONFEDERATION FOR PHYSICIAL THERAPY, Copenhagen, Denmark, Sept. 7-8.

WORLD MEDICAL ASSOCIATION, Stockholm, Sweden, Sept. 15-21. Dr. Louis H. Bauer, 2 E. 103d St., New York 29, N. Y., U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 18-20, Sept. 5-7 (Part I only). Applications must be filed at least thirty days prior to an examination. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

INTERNATIONAL COLLEGE OF SURGEONS

Examinations for Certified Fellowship in the United States Chapter in Urologic Surgery, Obstetrics and Gynecology and Proctologic Surgery, Chicago, June 1-2. Examinations will be given in General and Orthopedic Surgery, Chicago, Aug. 3-4. Sec., Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago 10.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral.* New York, June 8-10. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21, N. Y.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various centers, Oct. 15. Final date for filing applications was May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: June, includes candidates from Beirut, Canada, Canal Zone, Connecticut, Delaware, District of Columbia, Maryland, New Jersey, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Virginia and West Virginia. New York, date to be announced, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, date to be announced, covering Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah and Washington.

Only candidates who have not taken an oral examination can be admitted under the schedule arranged thus far.

Dates of closing dates for the filing of applications for examinations in New York and San Francisco to be announced.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.
Exec. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Feb. 1, 1952. Final date for filing applications is Nov 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Twenty-five centers, Feb. 4-5, 1952. *Oral.* New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Final date for filing applications for the 1952 Part II examinations is Aug. 15, 1951. Sec., Dr. Harry A. Sofield, 122 S. Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 9-12. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Detroit, June 8-10. This examination replaces the one originally scheduled for Cleveland in June. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* Philadelphia, June 16-17. Final date for filing application was April 1. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Chicago, June 4-6. Final date for filing application was March 15. Sec., Dr. Bradford Cannon, 330 Dartmouth St., Boston.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Written.* San Francisco, October 28. *Oral.* San Francisco, October 29. Sec., Dr. Ernest L. Stebbins, 615 North Wolfe St., Baltimore 5.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 11-12. Final date for filing application was March 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

DEATHS

Thom, Douglas Arthur ✦ Boston; born in Boston Oct. 4, 1887; University of Vermont College of Medicine, Burlington, 1912; professor of psychiatry at Tufts College Medical School from 1928 to 1947, when he became emeritus professor; past president of the Massachusetts School of Occupational Therapy; consulting psychiatrist, Smith College, Northampton, from 1925 to 1932, and St. Paul's School, Concord, N. H., from 1928 to 1930; specialist certified by the American Board of Psychiatry and Neurology; member and past president of the Boston Society of Psychiatry and Neurology, American Psychopathological Association, Massachusetts Society for Mental Hygiene and the Massachusetts Psychiatric Society; member of the American Neurological Association, American Psychiatric Association and the New England Society of Psychiatry and Neurology; for many years director of the division of mental hygiene, state department of mental diseases; since 1921 director of the Habit Clinic of Child Guidance; honorary consultant to the surgeon general in neuropsychiatry; branch section chief in neuropsychiatric training, U. S. Veterans Administration; served overseas during World War I; a colonel and neuropsychiatric consultant of the Second Service Command at Governors Island, N. Y., during World War II; assistant pathologist at Monson (Mass.) State Hospital from 1912 to 1916 and director of the outpatient department of the Boston Psychopathic Hospital from 1920 to 1923; a trustee of the Walter Fernald School in Waltham; received the honorary degree of master of science in medicine from the University of Vermont in 1935; in 1928 awarded a medal by *Children, The Magazine for Parents* for his book for parents, "Everyday Problems of the Everyday Child"; author of "Mental Health of the Child," 1928, "Normal Youth and Its Everyday Problems," 1932, and joint author with Dr. Richard Smith of "Health, Physical, Mental and Emotional," 1936; worked extensively with the Children's Bureau in Washington and wrote many of the bureau's publications; died February 23, aged 63, of cancer.

Hopkins, Joseph Gardner ✦ New York; born in New York June 30, 1882; Johns Hopkins University School of Medicine, Baltimore, 1907; since 1947 professor emeritus of dermatology at Columbia University College of Physicians and Surgeons, which he had joined in 1911 as assistant instructor of clinical pathology, subsequently serving as associate in bacteriology, assistant professor of bacteriology, assistant instructor in dermatology and professor of dermatology; bacteriologist for the American Red Cross Commission to Serbia in 1915; an officer in the Army medical corps during World War I; investigator for the committee on medical research, Office of Scientific Research Development, from 1941 to 1946; technical observer and consultant, Office of Field Service, 1945-1946 and civilian consultant to the surgeon general of the Army, 1945-1946; since 1946 consultant to the Veterans Administration hospital; consultant in dermatology to the Columbia Presbyterian Medical Center; member of the American Dermatological Association, American Academy of Dermatology and Syphilology, American Association of Pathologists and Bacteriologists, Society of American Bacteriologists, Society of Investigative Dermatology, New York Dermatological Society, American Mycological Society, Phi Beta Kappa and Alpha Omega Alpha; specialist certified by the American Board of Dermatology and Syphilology; died February 27, aged 68, of heart disease.

Yoder, Paul Allison ✦ Winston-Salem, N. C.; born in Hickory, N. C., March 9, 1895; University of Pennsylvania School of Medicine, Philadelphia, 1923; assistant professor of clinical medicine at the Bowman Gray School of Medicine of Wake Forest College; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and the American Trudeau Society; past president, a member of the executive committee and for many years a member of the board of directors of the North Carolina State Tuberculosis Association; past president and secretary-treasurer of the Forsyth County Medical Society; original secretary-treasurer of the North Carolina Trudeau Society; member of the committee which drafted "Diagnostic Standards" issued by the National Tuberculosis Association; formerly affiliated with the North Carolina State Sanatorium in Sanatorium; since 1941 consultant to the North Carolina Baptist Hospital; consultant and from 1929 to 1949 superintendent and medical director of Forsyth County Sanatorium, where he died February 12, aged 55, of cerebral vascular occlusion.

Price, James Woods ✦ Saranac Lake, N. Y.; born in Albemarle County, Va., Jan. 30, 1877; University of Virginia Department of Medicine, Charlottesville, 1901; member of the American Trudeau Society and the American Clinical and Climatological Association, of which he had been president; a vice president and director of the National Tuberculosis Association; served during World War I; for many years president of the board of trustees and medical director of Reception Hospital, also known as Prescott House; since 1948 trustee of Trudeau (N. Y.) Sanatorium; attending physician at the General Hospital and instructor at the Trudeau School of Tuberculosis; from 1904 to 1908 affiliated with Stony Wold Sanatorium in Lake Kushaqua, N. Y., and Saranac Laboratory, where he was a member of the advisory committee; died February 24, aged 74, of hypertension and arteriosclerosis.

Dolezal, Charles Theopilus ✦ Chicago; born in Cleveland Oct. 29, 1899; Western Reserve University School of Medicine, Cleveland, 1926; at one time instructor in medicine and assistant clinical professor of medicine at his alma mater; member of the American Hospital Association; formerly on the board of directors of the Cleveland Academy of Medicine and trustee of the Cleveland Hospital Council; served as director of public health and welfare of the City of Cleveland and as assistant superintendent and superintendent of City Hospital; became assistant director of the American Hospital Association and secretary of its Council on Professional Practice in May 1948; contributor to health and hospital publications; died in Passavant Memorial Hospital March 19, aged 51, of polycystic kidneys and uremia.

Phillips, William David ✦ New Orleans; born in St. Francisville, La., in 1883; Tulane University of Louisiana School of Medicine, New Orleans, 1909; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; formerly professor of operative gynecology at New Orleans Polyclinic; had been connected with the Louisiana State University Medical School in a teaching capacity; consultant at Charity Hospital, where for many years he was visiting surgeon and at one time member of the board of administrators; first visiting surgeon and later consultant in gynecology and obstetrics, Southern Baptist Hospital; visiting surgeon, Hotel Dieu and Mercy Hospital; vice president of the Audubon Park Commission; died February 7, aged 67, of carcinoma.

Williamson, Hervey Clock ✦ New York; born in 1887; University and Bellevue Hospital Medical College, New York, 1908; professor of clinical obstetrics and gynecology at the Cornell University Medical College; specialist certified by the American Board of Obstetrics and Gynecology; past president of the New York Obstetrical Society; fellow of the American College of Surgeons; attending obstetrician and gynecologist, New York Hospital; consulting obstetrician, Bellevue Hospital and New York Infirmary for Women and Children, New York, and Margaret Hague Maternity Hospital, Jersey City, N. J.; affiliated with French Hospital, where he died February 1, aged 63, of carcinoma of the prostate.

Beecher, William Lyman, Starkville, Miss.; born in Ohio June 25, 1870; Northwestern University Medical School, Chicago, 1901; formerly practiced in Chicago, where he had been clinical assistant in dermatology at his alma mater and from 1925 to 1936 member of the department of allergy at Post Graduate

✦ Indicates Fellow of the American Medical Association.

Hospital and Medical School; in 1929 joined the faculty of Loyola University School of Medicine in Chicago, where for many years he was clinical professor of medicine; past president of the Chicago Society of Allergy; member of the American Medical Association and Illinois State Medical Society; fellow of the American College of Allergists; died February 27, aged 80, of cardiac failure.

Page, Calvin Gates ✠ Boston; born in Boston July 9, 1867; Harvard Medical School, Boston, 1894; an Associate Fellow of the American Medical Association; member of the American Public Health Association, Massachusetts Public Health Association, Society of American Bacteriologists, International Union Against Tuberculosis, and the American Trudeau Society; formerly assistant professor of bacteriology at his alma mater; from 1921 to 1926 associate professor at the Massachusetts College of Pharmacy; for many years research bacteriologist for the otolaryngology laboratory, Massachusetts Eye and Ear Infirmary; died in Brookline, Mass., February 25, aged 83, of hypertensive heart failure.

Elgin, Eugene, East Berlin, Pa.; Atlantic Medical College, Baltimore, 1909; member of the American Medical Association; past president of the Adams County Medical Society; for many years epidemiologist and division chief, state department of health; served as county medical director; past president of the Adams County School Directors' Association and for many years treasurer of the Adams County Firemen's Association; formerly county representative in the general assembly at Harrisburg; at one time school director, councilman and burgess; past president of the medical staff, Annie M. Warner Hospital in Gettysburg; died February 11, aged 64, of coronary occlusion.

McKelvey, Gilbert Johnston, Portland, Ore.; born in Kingston Ont., Canada, April 23, 1906; Queen's University Faculty of Medicine, Kingston, 1932; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; associate clinical professor of orthopedic surgery at the University of Oregon Medical School; served during World War II; on the staffs of the Doernbecher Memorial Hospital for Children, Multnomah and St. Vincent's hospitals; affiliated with Portland Clinic; died in University Hospital, Minneapolis, February 27, aged 44, of hypernephroma of left kidney with metastasis.

Regan, James Sutton ✠ Buffalo; born in Oswego, N. Y., Feb. 2, 1900; University of Buffalo School of Medicine, 1924; assistant professor of surgery at his alma mater; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Buffalo Surgical Society; consulting surgeon, Buffalo Eye and Ear Infirmary and Wettlaufer Clinic; attending surgeon, Children's Hospital, where he was president of the medical staff, and Buffalo General Hospital, where he died February 17, aged 51, of hypertensive cardiovascular renal disease.

Scholtes, Harry John ✠ Captain, U. S. Navy, retired, St. Petersburg, Fla.; born in Reeds, Minn., in 1892; University of Minnesota Medical School, Minneapolis, 1918; on March 26, 1923, was commissioned a lieutenant (jg) in the medical corps of the Navy; served in many hospitals throughout the United States, on ships of the active fleet and on foreign shore; his last active duty station was Naval Training Center, Memphis, Tenn., in 1944; retired from active duty in November 1944 because of physical disability; died in St. Anthony's Hospital February 11, aged 58, of coronary occlusion.

Armstrong, Ellery Leslie ✠ Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1916; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; staff member of the Miller Memorial, St. Luke's, and St. Mary's hospitals; died January 2, aged 61.

Bieler, Leo, New York; Medizinische Fakultät der Universität, Wien, Austria, 1924; member of the American Medical Association; affiliated with Beth Israel Hospital, where he died February 20, aged 53, of secondary anemia.

Blount, William Thomas, Durant, Okla.; University of Arkansas School of Medicine, Little Rock, 1906; member of the American Medical Association; died in Durant Hospital February 11, aged 74, of coronary occlusion and arteriosclerosis.

Carter, Jonathan Basil, Wilson, Kan.; University of Kansas School of Medicine, Kansas City, 1910; member of the American Medical Association; served during World War I; lieutenant colonel in the medical reserve corps, not on active duty; for many years mayor of Wilson and state senator; affiliated with Ellsworth County Veterans Memorial Hospital in Ellsworth; died in Ellsworth February 4, aged 73, of cerebral hemorrhage.

Charlap, Fishel, New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1922; member of the American Medical Association; died February 15, aged 60, of coronary thrombosis.

Giddings, Charles Glenville Sr., Atlanta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1884; member of the American Medical Association; died in Emory University Hospital February 24, aged 89, of acute leukemia.

Griswold, Arthur H. ✠ Hartford, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1906; affiliated with the Veterans Administration; died February 25, aged 71.

Gundrum, Willis H. ✠ Canoga Park, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1891; affiliated with Valley Hospital in Van Nuys; died February 12, aged 89.

Gwin, James Jefferson ✠ Hartsville, Tenn. University of Louisville School of Medicine, 1931; died January 8, aged 44.

Hamsher, John Fremont, St. Paris, Ohio; University of Cincinnati College of Medicine, 1910; member of the American Medical Association; served during World Wars I and II; died March 1, aged 66, of carcinoma.

Harding, Carl William, Los Angeles; University of Kansas School of Medicine, Kansas City, 1937; member of the American Medical Association; served during World War II; died in Centinela Hospital, Inglewood, recently, aged 48, of myocardial infarction and coronary sclerosis.

Hatch, Trafton LeRoy, Cranford, N. J.; Syracuse University College of Medicine, 1901; died February 27, aged 75, of carcinoma of the stomach.

Hayes, Joseph David ✠ Detroit; Detroit College of Medicine, 1908; served as chief of staff of St. Joseph Mercy Hospital, where he died February 20, aged 68, of arteriosclerotic heart disease and chronic nephritis.

Henson, Earl Bennette ✠ Charleston, W. Va.; University of Louisville (Ky.) Medical Department, 1914; fellow of the American College of Surgeons; served during World War I; attending orthopedic surgeon, Kanawha Valley Hospital; visiting orthopedic surgeon, Charleston General, Mountain State Memorial and St. Francis hospitals; surgeon in charge, Marmet Hospital for Crippled Children, Marmet; consulting surgeon, McMillan Hospital; died February 10, aged 60, of coronary thrombosis.

Hersch, Thomas Franklin ✠ Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1914; past president of the Linn County Medical Society, of which he had been secretary; formerly deputy coroner and coroner of Linn County; affiliated with St. Luke's, Methodist and Mercy hospitals; editor of *Bulletin of Linn County Medical Society;* died February 12, aged 63, of heart disease.

Holland, Clell Gresham, Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1927; member of the American Medical Association; served during World War II; part owner of the Cleveland (Texas) Hospital and the North Houston Hospital; died February 18, aged 45, of heart disease.

Hoyt, Jesse Marion, Nokomis, Ill.; Marion-Sims College of Medicine, St. Louis, 1897; formerly postmaster of Fillmore; served during World War I; died in the Veterans Administration Hospital in Jefferson Barracks, Mo., February 18, aged 78, of coronary thrombosis.

Hughey, Albert Gesler, Dewar, Okla.; Memphis Hospital Medical College, 1891; died February 8, aged 81, of coronary heart disease.

Jack, Robert Berry, Mount Vernon, Ill.; Barnes Medical College, St. Louis, 1898; served during World War I; died February 28, aged 88, of cancer.

Jordan, James Ernest ✦ Columbia, Mo.; University of Missouri School of Medicine, Columbia, 1895; member of the American Association of Industrial Physicians and Surgeons; died in Boone County Hospital February 26, aged 77, of uremia and arteriosclerosis.

Kirkpatrick, Lawrence Randolph, Ware Shoals, S. C.; North Carolina Medical College, Davidson, 1902; member of the American Medical Association; served during World War I; on the staff of Greenwood Hospital in Greenwood; died in Beaufort February 24, aged 71, of coronary occlusion.

Kleinpell, Henry Herman ✦ Prairie Du Chien, Wis.; Rush Medical College, Chicago, 1900; also a graduate in pharmacy; member of the school board; formerly practiced in Chicago, where he was associated with Augustana, Children's Memorial, and St. Vincent's Infant and Maternity hospitals; served overseas during World War I; died in Tempe, Ariz., February 24, aged 81.

Lait, Francis M. ✦ Cleveland; Baltimore Medical College, 1907; died January 31, aged 74.

Mabry, Samuel A., Kansas City, Mo.; Marion-Sims College of Medicine, St. Louis, 1897; also a graduate in pharmacy; served on the draft board during World War II; died March 1, aged 80.

McCall, John Turner, Rome, Ga.; Atlanta College of Physicians and Surgeons, 1904; member of the American Medical Association and the Southeastern Surgical Congress; fellow of the American College of Surgeons; affiliated with Floyd Hospital and McCall Hospital, where he was chief of staff; died February 11, aged 68, of suppurative colitis.

McCoart, Richard Felix ✦ Providence, R. I.; Tufts College Medical School, Boston, 1913; member of the New England Obstetrical and Gynecological Society and the American Association of Industrial Physicians and Surgeons; served as president of the Rhode Island Society of Industrial Physicians and Surgeons; affiliated with Roger Williams and St. Joseph's hospitals; died February 25, aged 60, of carcinoma of the bronchus with metastases to the liver and the spine.

McDougall, Dan Campbell, Pocatello, Idaho; George Washington University School of Medicine, Washington, D. C., 1927; specialist certified by the American Board of Pediatrics; past president of the Pocatello Medical Society; on the staffs of the Pocatello General and St. Anthony's hospitals; died March 8, aged 51.

McGuire, Philip John, Barberton, Ohio; Loyola University School of Medicine, Chicago, 1932; member of the American Medical Association; served during World War II; on the staff of the Barberton Citizens Hospital; died February 23, aged 46, of heart disease.

McLaughlin, Clyde Lee Devillow, Vermontville, Mich.; Detroit College of Medicine, 1906; served during World War I; for many years president of the school board; died in Lakeland, Fla., March 25, aged 68, of myocardial infarction.

Mayes, Joseph Allen, Denison, Texas; University of Texas School of Medicine, Galveston, 1904; served on the school board; affiliated with Madonna Hospital, where he died January 16, aged 72, of coronary thrombosis.

Offner, John Edward ✦ Fairmont, W. Va.; Maryland Medical College, Baltimore, 1904; formerly state health commissioner; an Associate Fellow of the American Medical Association; member of the American Psychiatric Association; veteran of the Spanish-American War; for many years superintendent of the Weston (W. Va.) State Hospital; died February 18, aged 71.

Owens, Samuel Logan, Washington, D. C.; Georgetown University School of Medicine, Washington, 1903; member of the American Medical Association; died in Georgetown University Hospital February 23, aged 72, of carcinoma of the stomach.

Paolazzi, Guido Erardo ✦ Canton, Ohio; Medizinische Fakultät der Universität, Wien, Austria, 1899; served in the Austrian Army during World War I; died February 13, aged 76, of carcinoma of the prostate.

Parker, John Woodcock Jr. ✦ West Hartford, Conn.; Yale University School of Medicine, New Haven, 1906; served as president of the board of health of Hartford; for many years medical adviser for public schools in Hartford; died in the Hartford Hospital February 6, aged 70, of myocardial infarction and congestive failure.

Pittman, James Harry, Camp Point, Ill.; Rush Medical College Chicago, 1901; died January 29, aged 72, of carcinoma of the urinary bladder.

Pratt, Charles Minter, Oklahoma City; University of Louisville (Ky.) Medical Department, 1905; member of the American Medical Association; died February 1, aged 75, of cerebral hemorrhage.

Price, Willard Arthur ✦ Nappanee, Ind.; Medical College of Indiana, Indianapolis, 1895; an Associate Fellow of the American Medical Association; first mayor of Nappanee; for many years member of the school board; died February 16, aged 83, of carcinoma of the pancreas.

Pritchett, James Henry ✦ Louisville, Ky.; University of Louisville Medical Department, 1911; associate clinical professor of pediatrics at his alma mater; past president of the Kentucky State Medical Association; served during World War I; on the staff of Kentucky Baptist Hospital, where he died February 1, aged 61, of coronary thrombosis.

Ransom, William Walter, Birmingham, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; member of the American Medical Association; died February 4, aged 82, of cerebral thrombosis and arteriosclerosis.

Reece, Barney F., Gause, Texas (licensed in Texas under the Act of 1907); died in Newton Memorial Hospital, Cameron, February 16, aged 77, of arteriosclerotic heart disease with decompensation.

Riemenschneider, Ernest W., Cleveland; Cleveland University of Medicine and Surgery, 1896; died February 5, aged 77, of arteriosclerotic heart disease.

Rowe, William Guy, Blue Springs, Mo.; University Medical College of Kansas City, 1900; served during World War I; died February 17, aged 71, of coronary occlusion.

Samson, Leon Loyal ✦ Alexandria Bay, N. Y.; University of Vermont College of Medicine, Burlington, 1905; past president of the Medical Society of the County of Jefferson; health officer of the town of Alexandria and of the village of Alexandria Bay; president of the North Country Community Hospital in Glen Cove; member of the staffs of Good Samaritan and Mercy hospitals in Watertown; chief of staff of the Edward John Noble Hospital, where he died February 15, aged 72, of coronary thrombosis.

Saul, Henry Wilson, Kutztown, Pa.; Baltimore Medical College, 1894; member of the American Medical Association; deputy coroner for many years; past president of the Berks County Medical Society; for many years member and vice president of the school board; served on the staff of the Reading (Pa.) Hospital; director and vice president of the First National Bank; died February 12, aged 81, of carcinoma of the pancreas.

Schneider, Charles Augustus ✦ Newark, N. J.; Baltimore Medical College, 1900; also a graduate in pharmacy; for many years on the staff of the Presbyterian Hospital; on the consulting staff of Irvington General Hospital and on the courtesy staff of St. Barnabas and St. Michael's hospitals; died February 2, aged 74, of lymphoblastoma.

Schwyzer, Gustav, Minneapolis; Universität Zürich Medizinische Fakultät, Switzerland, 1892; member of the American Medical Association and Western Surgical Association; fellow of the American College of Surgeons; affiliated with Northwestern Hospital and Minneapolis General Hospital; died in Biloxi, Miss., February 2, aged 83, of heart disease.

Scott, James R., Chula Vista, Calif.; Rush Medical College, Chicago, 1900; president of the Chula Vista Building & Loan Association; served during the Spanish-American War; for service during World War I was awarded the Croix de Guerre with a palm and other decorations; died February 18, aged 76, of carcinoma of the lungs.

Sharp, Robin Theodore, Columbus, Ohio; University of Cincinnati College of Medicine, 1938; member of the American Medical Association; on the staff of White Cross Hospital; died February 7, aged 40, of coronary occlusion.

Short, Willis Leland, Oklahoma City; Ensworth Medical College, St. Joseph, Mo., 1892; died February 1, aged 87, of hypertensive heart disease and nephrosclerosis.

Shortell, Joseph Henry ✦ Boston; Harvard Medical School, Boston, 1916; fellow of the American College of Surgeons; served during World War I; instructor in surgery at Tufts College Medical School from 1920 to 1940; affiliated with Boston City Hospital; president of the Boston Orthopedic Club; died in Daytona Beach, Fla., February 3, aged 59, of acute myocardial infarction and coronary sclerosis.

Shurtleff, Fred Cazeaux, Los Angeles; Long Island College Hospital, Brooklyn, 1891; served on the staffs of the Good Samaritan, Methodist and General hospitals; died in the Veterans Administration Hospital, Sawtelle, February 26, aged 83, of cancer of the stomach.

Simon, Carleton, New York; Université de Paris Faculté de Médecine, France, 1890; Eclectic Medical College of the City of New York, New York, 1894; formerly deputy police commissioner; died in New York Hospital February 18, aged 79.

Smith, Claude A., Stockbridge, Ga.; Southern Medical College, Atlanta, 1898; formerly practiced in Atlanta, where he was for many years city bacteriologist and pathologist to the Grady Hospital; died February 8, aged 77, of heart failure.

Smith, Herbert Richard, Oakland, Calif.; College of Physicians and Surgeons, San Francisco, 1898; also a graduate in pharmacy; died in Washoe Medical Center, Reno, Nev., February 18, aged 80, of carcinoma of the liver and diabetes mellitus.

Smith, Walter Fox ✦ Watertown, N. Y.; Cornell University Medical College, New York, 1921; fellow of the American College of Physicians; past president of the Jefferson County Medical Society; served as county physician; member of the board of the Children's Home of Jefferson County; a consultant on the medical staff of St. Lawrence State Hospital in Ogdensburg; held various positions on the staffs of Mercy Hospital and the House of the Good Samaritan, where he died February 3, aged 55, of cerebral hemorrhage.

Snyder, Frank Hassan, Geneva, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1915; member of the American Medical Association; served during World War I; county coroner; on the staff of Geneva General Hospital; surgeon for the Lehigh Valley Railroad; died February 3, aged 61, of hypertensive heart disease.

Stewart, Byron Lee, Beverly Hills, Calif.; University of Pennsylvania School of Medicine, Philadelpha, 1930; assistant clinical professor of psychiatry at the College of Medical Evangelists, Los Angeles; member of the American Psychiatric Association and the American Medical Association; served as president of the Los Angeles Society of Neurology and Psychiatry; formerly on the staff of the Compton (Calif.) Sanitarium; affiliated with St. John's Hospital in Santa Monica, where he died February 5, aged 47, of coronary occlusion.

Sullivan, Daniel John, Jr., Washington, D. C.; Georgetown University School of Medicine, Washington, D. C., 1950; intern at the Gallinger Municipal Hospital, where he died January 24, aged 26.

Sweeney, John Augustin ✦ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1921; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Misericordia Hospital; died in Philadelphia General Hospital February 14, aged 55, of pneumonia.

Swett, Eddy Benjamin, Grasmere, N. H.; Harvard Medical School, Boston, 1889; member of the American Medical Association; served during World War I; later a lieutenant colonel in the medical division of the reserve corps until his retirement; on the staff of the Hillsborough County General Hospital; died February 22, aged 83, of arteriosclerosis.

Sykes, Everett William ✦ Anahuac, Texas; Northwestern University Medical School, Chicago, 1908; died February 27, aged 68, of coronary occlusion.

Thompson, Lunsford Michael ✦ Cashmere, Wash.; University of Louisville (Ky.) Medical Department, 1910; served in France during World War I; affiliated with Deaconess Hospital and St. Anthony's Hospital in Wenatchee; died February 7, aged 66, of the cardiorenal syndrome and coronary heart disease.

Tierney, Myles Joseph, Palm Beach, Fla.; Columbia University College of Physicians and Surgeons, New York, 1899; died in West Palm Beach, Fla., February 4, aged 76, of coronary thrombosis and pleurisy with effusion.

Todd, Melvin Brian, Hollywood, Fla.; Cleveland University of Medicine and Surgery, 1894; member of the American Medical Association and the Ohio State Medical Association; died February 14, aged 84, of cerebral hemorrhage and generalized arteriosclerosis.

Tucker, James Martin, Oakland, Calif.; Jefferson Medical College, Philadelphia, 1941; received the Bronze Star for meritorious service while serving with the 94th division in Germany during World War II; held a teaching fellowship in pathology at Northwestern University Medical School, Chicago; affiliated with the Veterans Administration Hospital; died in Piedmont, February 18, aged 36, of coronary occlusion.

Ultes, William Philip, Springfield, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; member of the American Medical Association; served as secretary of the Clark County Medical Society; affiliated with Springfield City Hospital; died February 13, aged 71, of pulmonary embolism.

Wayman, Armour Keach, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1905; member of the American Medical Association; superintendent of the Pualski County Hospital from 1941 to 1948; died February 6, aged 70, of gastroenteritis.

Wilbourn, Champion Ellis, Alex, Okla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; died in Chickasha February 8, aged 88, of fracture of the right femur due to a fall.

Williams, Earl T., Greenbrier, Ark.; University of Arkansas School of Medicine, Little Rock, 1910; head of the Greenbrier Baseball School; died January 29, aged 70, of heart disease.

Wilson, Charles Edward, Blytheville, Ark.; Memphis Hospital Medical College, 1904; member of the American Medical Association; affiliated with Blytheville Hospital; died February 23, aged 82.

Wolf, Herman Emil ✦ La Crosse, Wis.; Rush Medical College, Chicago, 1903; died suddenly on board ship off the coast of Rio de Janeiro, Brazil, in February, aged 71.

Wolfe, Edward Inman ✦ Forty Fort, Pa.; Jefferson Medical College of Philadelphia, 1917; fellow of the American College of Physicians; affiliated with the Wilkes-Barre (Pa.) General Hospital; died February 16, aged 56, of myocarditis.

Wood, William Alva, Waco, Texas; Jefferson Medical College of Philadelphia, 1887; member of the American Medical Assotion and in 1905 member of its House of Delegates; in 1912 president of the Twelfth District Medical Society; died recently, aged 88.

Wright, Elbert Logan, Parkersburg, W. Va.; University of Nashville Medical Department, 1891; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the American Medical Association; honorary life member of the West Virginia State Medical Association; on the staff of St. Joseph's Hospital; died February 10, aged 85, of arteriosclerotic heart disease.

Young, Herbert George, Detroit; Michigan College of Medicine and Surgery, Detroit, 1896; died in Woman's Hospital recently, aged 79, of coronary artery disease and essential arterial hypertension.

GOVERNMENT SERVICES

ARMY

To Call 105 Reserve Officers During June.—The Department of the Army has announced that 105 medical officers of the army medical service reserve will be ordered into the active military service during June. The 105 officers are in priority 1 as established by Public Law 779 of the 81st Congress. The officers will be given at least 30 days in which to close out personal and business affairs, unless they wish to report at an earlier date. This is the third group of medical officers of the army ordered into active military service since last December. In all, since the beginning of the Korean fighting a total of 2,304 medical corps reserve officers have been issued orders to active duty, and this total includes 1,264 priority 1 physicians.

Priority 1 for medical and dental reserve officers applies to those who participated as students in the army specialized training program, or similar programs administered by the navy, and those deferred from service during World War II to pursue a course of instruction leading to an education in medical and allied specialist categories or dental and allied specialist categories and who have had less than 90 days' active military service after completion of or release from the program or course of instruction.

The quota of 105 medical officers is being drawn from three Army areas: Fourth Army, 24; Fifth Army, 38, and Sixth Army, 43.

Government Pays for Training Psychologists.—The army's Senior Psychology Program has been extended for a period of three years, Maj. Gen. Raymond W. Bliss, surgeon general, announced. Eligible for participation are full-time students in clinical psychology who are attending universities accredited for training in clinical psychology by the American Psychological Association. Students in the second or third year of graduate training in clinical psychology may be eligible for appointment under the program. If accepted, the student is appointed as second lieutenant, medical service corps reserve, and receives the pay and allowances of that grade for a maximum of 24 months during the final period of graduate study. The third year of graduate work is served in an approved internship in one of the three army hospitals accredited as neuropsychiatric teaching institutions: Walter Reed in Washington, D. C., Fitzsimons in Denver and Letterman in San Francisco. Internship is supervised by a well-qualified psychologist. The fourth year is spent at the student's university completing the requirements for a Ph.D. On receipt of the degree of doctor of philosophy, the student may be tendered a commission as first lieutenant, regular army, medical service corps.

NAVY

Naval Industrial Health Conference a Success.—The third annual Naval Industrial Health Conference held April 22 to 27 in Atlantic City, N. J., was attended by 116 delegates from the naval industrial plants, the shipyards, air stations, ordnance plants, research centers, and supply depots that exist to provide the logistic support for the fleet. Among the delegates were naval officers who are responsible for the guidance of the navy's industrial health program, as well as civilian industrial hygienists, nurses, and safety personnel. Representatives from the U. S. Air Force, U. S. Army, Royal Navy, and the Royal Canadian Navy were also present.

With more than 250,000 civilian employees in its industrial plants and a combination of industrial hazards common to shipbuilding, ordnance, air, and research industries, ranging from exposure to industrial solvents to ionizing radiation, the navy has found it necessary to keep abreast of the latest developments in the field of industrial medicine and hygiene. The occupational health program provided the thousands of employees is more than mere compliance with laws and directives —it is recognized today as being a contribution to production.

The conference constituted a concentrated postgraduate course for the officers and civilians who are providing a health service that is contributing to the productive efficiency of the navy industrial facilities, a health program that is gaining recognition as being comparable to the best in private industries of comparable size and complexity.

Personals.—Rear Adm. Lamont Pugh, the surgeon general, addressed members of the senior class of the Jefferson Medical Center, Philadelphia, May 2 on "The Relation Between Dentistry and Medical Practice."

Capt. Robert W. Babione, MC, conducted a seminar on the preventive medicine program of the navy at the University of Pittsburgh school of public health May 9.

AIR FORCE

Aviation Medical Examiners.—More than 55 aviation medical examiners received diplomas May 5 at the Air Force School of Aviation Medicine, Randolph Field, Texas, after completing six weeks of intensive training. The class was composed of regular, National Guard, reserve, and foreign medical officers. Maj. Gen. Morrison C. Stayer, retired, now of Carlisle, Pa., former chief of public health and welfare in the office of the military government for Germany, delivered the graduation address.

Due to the expansion of the air force, the examiners' course was cut from 11 to six weeks duration, and because of this graduates do not receive their AME ratings until successfully completing a three-months supervised preceptorship. During this time each one must log 25 hours flying time in military aircraft, conduct 50 physical examinations for flying and be properly recommended for the rating. After the three-months preceptorship the graduates will be qualified for duty with air force units, where their primary duty will be to conduct physical examinations for flying.

The two foreign officers in the class were Capt. Hans K. Knoepfel of Switzerland and Capt. Ignacio D. Chavez of Nicaragua.

After acquiring his aviation medical examiner rating each graduate, after an additional year of field service and on recommendation, will become eligible for the rating of flight surgeon.

Temporary Promotions in Rank of General.—The following temporay promotions of medical service officers were confirmed by the Senate on April 11:

Brigadier general to major general, Dan C. Ogle and Wallace H. Graham; colonel to brigadier general, Clyde L. Brothers and Harold H. Twitchell.

Major General Ogle has been deputy surgeon general of the U. S. Air Force Medical Service since Dec. 1, 1949. Major General Graham is personal physician to the President and staff surgeon at Walter Reed Army Hospital. Brigadier General Brothers is presently air surgeon of the Far East Air Force. Brigadier General Twitchell is commanding general at Tripler Army Hospital in Hawaii.

DEPARTMENT OF DEFENSE

Defense Department Asks Selective Service System for More Doctors.—The Department of Defense April 23 asked the Selective Service System to provide the priority 1 doctors of medicine required by the military services for July, August, and September 1951. The call was placed because the number of priority 1 doctors volunteering for commissions is not expected to meet the requirements. The numbers requested are 717 for July, 333 for August and 152 for September.

Priority 1 doctors are those who received their medical education at government expense or were deferred from service during World War II to attend medical school and who have served

less than 90 days in the armed forces, the Coast Guard or the U. S. Public Health Service. The Selective Service Act requires that all available and qualified doctors of medicine in the first priority be called before doctors in priority 2 are summoned. If the number of priority 1 doctors who volunteer increases, the number to be provided through selective service channels will decrease correspondingly.

Appoint Assistant Administrator.—Col. William L. Wilson, U. S. Army Medical Corps, has been appointed assistant administrator for Health and Welfare of the Civil Defense Administration. Since 1948, Colonel Wilson has been special assistant to the Surgeon General of the United States Army for Civil Health Affairs. Directing the Health Services and Special Weapons Division under Colonel Wilson will be Dr. Norvin C. Kiefer, former director of the Health Resources Office of the National Security Resources Board. Raymond T. Schaeffer, former associate national director of Disaster Services at the American National Red Cross, will head the Emergency Welfare Services under Colonel Wilson.

PUBLIC HEALTH SERVICE

Increase in Narcotic Addiction in Young People.—Officials of the U. S. Public Health Service revealed in testimony before an appropriations subcommittee of the House of Representatives in March that there has been a large increase in the number of young people admitted to the two hospitals of the Public Health Service where drug addiction is treated. According to the *New York Times*, Dr. G. Halsey Hunt of the Public Health Service said that in 1946 a total of 26 patients under 21 years of age were admitted to the Public Health Service hospitals at Lexington, Ky., and Fort Worth, Texas. This total increased to 700 in the last four months of 1950. To meet the need for more hospital beds the Fort Worth hospital plans to take 300 beds from veterans, Dr. Hunt said. It has been caring for about 500 service men who are neuropsychiatric patients. The Veterans Administration said that it had stopped sending veterans to the Fort Worth hospital and hoped to relinquish the 300 beds by July 1.

Dr. Jack Masur, chief of the health service's medical service bureau, related that the Lexington hospital was so crowded that there was no room to segregate the young first-time patients from older "repeaters." He said the larger number of teen-agers were coming from Chicago and New York.

Dr. Victor H. Vogel of the Lexington hospital said the number of applicants, some of whom came voluntarily while others were sent by courts, was so large there was a waiting list of 200. The young patients and first-timers receive preference. Dr. Vogel said that the narcotic heroin "has suddenly become easy to obtain near school grounds and in certain neighborhoods of large cities," and that many teen-agers switched to it from marijuana.

Examination for Sanitary Engineers.—Competitive examinations for the appointment of officers as sanitary engineers in the regular commissioned corps of the U. S. Public Health Service will be held in various cities August 6, 7, and 8. The examination will include professional written tests, an oral interview and a physical examination. Completed applications must be in the Washington office by July 9.

Appointments are permanent and provide opportunities for career service in research and public health activities. Appointments will be made in the grades of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j.g.) and lieutenant respectively. Entrance pay for an officer with dependents is $4,486 in the assistant grade and $5,346 in the senior assistant grade, including rental and subsistence allowance. Applicants must have a bachelor's degree in engineering, preferably in civil, sanitary or chemical engineering, and must complete by May 1952 a total of at least three additional years of professional training and experience. At least two years of the required experience must have been in public health or an acceptable related field.

For information write to: Surgeon General, United States Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers, DESK A.

Guide for Organizing Health Departments.—A guide for organizing local health departments in relation to community hospitals so that the two can operate as a community health team is set forth in a new publication of the Public Health Service entitled "Public Health Areas and Hospital Facilities: A Plan for Coordination." Authors of the study are Dr. Joseph W. Mountin, associate chief of the Bureau of State Services, and Clifford H. Greve, Division of State Grants, of the Public Health Service.

Health service areas are fully mapped out for each state. The maps depict how local health departments could be coordinated with existing or proposed hospital facilities planned under the national hospital survey and construction program. They also show how both community agencies could be included in a pattern of regional organization. Explanatory tables detail the basic staffing requirements for the suggested health units and the expenditures needed to put the plan into effect. Copies of the publication may be obtained from the superintendent of documents, Government Printing Office, Washington, D. C., at 60 cents per copy. The Public Health Service will distribute copies to state health officers, state administrators of local health services and to state hospital authorities.

Officer Specialists.—Of 672 regular corps medical officers on duty with the Public Health Service as of March 27, 1951, 216, or 33 per cent, had been certified by American boards, and 13 had completed part of their examinations. The number of officers certified in each of the specialties follows: anesthesia, 2; dermatology and syphilology, 5; internal medicine, 20; otolaryngology, 3; ophthalmology, 3; orthopedic surgery, 1; pathology, 11; pediatrics, 2; preventive medicine and public health, 120; psychiatry and neurology, 24; radiology, 8; surgery, 16, and urology, 1.

MISCELLANEOUS

Visitors' Day at Brookhaven—The Cosmotron.—Visitors' day at Brookhaven National Laboratory in Upton, L. I., N. Y., May 6 was arranged in response to requests by various groups for permission to see the atomic laboratory. The tour, limited to nonsecret portions of the laboratory, included visits to the biology department, meteorological station and three particle accelerators—cosmotron, cyclotron and electrostatic accelerator. There also was a demonstration of radiation protection equipment and techniques and a showing of movies on atomic energy subjects. About 1,000 high school and college students and members of various civic organizations participated.

The 2,200-ton magnet of the cosmotron has recently been completed, and tests at full power of 40,000,000 watts have been successful. Supporting elements, such as accelerating, radio frequency and vacuum systems, are now being added. The cosmotron, so named because it will be used to produce artificial cosmic rays, is designed to speed protons to an energy exceeding 2,000,000,000 electron volts, or five times that of the most powerful existing accelerators. These protons (nuclei of hydrogen atoms) will strike various targets, including copper and hydrogen. Collisions at such energies are expected to yield data on the forces between protons and neutrons in atomic nuclei.

Brookhaven is the northeastern center for nuclear research and development and is operated under contract with the AEC by Associated Universities, Inc., a nonprofit, educational corporation sponsored by nine leading eastern universities. The laboratory's participation in the AEC's national program is twofold: primarily, it consists of long-term fundamental studies of atomic energy, but at the same time a portion of its research is directed toward immediate assistance in national defense.

FOREIGN LETTERS

ITALY

Tensiography of Auricle and Ventricle.—At the World Congress of Cardiology, in Paris, Professor Condorelli, director of the medical clinic of the University of Catania, reported on the principles and technique of tensiography of the auricles and ventricles. He stated that the methods for graphic recording of auricular and ventricular pressures used at present do not permit prolonged recordings. The new system consists in enclosing in the cardiac chamber an air bubble connected by airway with a water or mercury manometer. The movements of the fluid in the manometric tube are directly registered with the tensiograph. Catheters impermeable to air have been constructed, equipped at one end with a very fine rubber capsule that can hold 2 cc. of air without being in tension. Error through deformation caused by the air medium is negligible, owing to the small amount of air contained in the transmission system, which has a rigid structure. With the apparatus described, the auricular, ventricular and venous pressures may be recorded simultaneously for an indefinite period together with, for example, respiration and pulse.

Professor Condorelli with Drs. Turchetti, Schirosa and Strano, of the University of Catania, reported the first results obtained by clinical use of auricular and ventricular tensiography.

It was observed that auricular tension is influenced by respiratory activity, the auricular systolic variations being covered by the more ample respiratory oscillations of the auricular pressure. Apnea induces a progressive rise in intra-auricular pressure, increased by expiratory efforts, while the pressure is lowered by deep inspirations. A noticeable increase of the auricular pressure follows raising of the lower extremities and the injection of epinephrine. In conditions of circulatory insufficiency accompanied by plethora, the auricular pressure increases when fibrillation exists, unless conditions are simultaneously present which prevent the transmission of variations of respiratory tensions to the auricles. Ventricular diastolic pressure is similar to auricular pressure. Variations of the right systolic ventricular pressure depend not only on intrathoracic variations of pressure but also on the functional state of the myocardium. In some cases, a negatively inotropic inspiratory reflex occurs.

Methionine Therapy.—Professor Campanacci, of the University of Parma, discussed the use of methionine in liver disease. He stated that among the various sulfur-bearing amino acids, methionine has the advantage of supplying methyl and sulfhydryl (SH) groups. To the methyl group of methionine must be ascribed only the property of transmethylating fats, while all the other actions protecting the liver, such as glycogen fixation, sulfur oxidation and sulfur conjugation, must be attributed to the sulfhydryl group.

Although methionine represents the lipotropic substance of choice, other substances should not be neglected in the treatment of liver diseases, including other sulfur-bearing products as well as the pellagra-preventing factor (nicotinic acid), dextrose, adrenal hormones and thiosulfates. In fact, while methionine does not present any protective action against acute alloxan poisoning, cystine protects against chemical diabetes, sodium thiosulfate has certainly an antiallergic action not possessed by methionine, and other products are superior to methionine as detoxicating agents in poisoning from heavy metals.

Investigations carried on by Professor Campanacci's school suggest that sodium thiosulfate alone is capable of protecting the liver against nutritional steatosis, better than methionine itself, and with an intensity of action equaling that of inositol. The methionine dosage must be sufficiently high (from 2 to 3 Gm. in 24 hours); parenteral or rectal administration of the drug is preferred, since its reabsorption may be insufficient in the presence of a liver disease.

In view of the fact that methionine acts on the fatty degenerative and necrotic components of the diseased liver, and not on the vascular lesions or on those of the connective tissues, satisfactory results may be obtained only by use of this drug in the preascitic phase of cirrhosis.

Public Health Problems Before Parliament.—Many public health problems were recently discussed in the house of representatives and in the senate in Italy. One concerned the revision of the category classification of various hospitals. Since the end of the war, the Italian civilian hospitals have been in an unstable position, caused by slow and expensive reconstruction. The revision of the classification in categories will be done after the period of reconstruction.

Senator Lamberti questioned the high commissioner of hygiene and public health about the advisability of modifying the present legislation so that the competitions for municipal doctors would be completed more promptly and the present unsatisfactory state of interim functions be avoided. The high commissioner said he had ordered the contests for municipal doctors to be held every six months rather than every year and the assignment of all the municipal doctors entering the contests within six months after publication of the graduated list.

Some senators introduced bills dealing with rules of the professional practice of dental technicians and workers in dentistry. These proposed laws have their basis in the particular importance that dentistry has assumed lately. The proposed law envisages the establishment of special schools for dental technicians and the institution of provincial registration for dental technicians fixing the duties and limits in the practice of dental technique and auxiliary dental handicrafts.

Professor Donatelli.—The faculty of medicine and surgery of the University of Naples has appointed Prof. Leonardo Donatelli to the chair of pharmacology. Born in Aquila (Italy) in 1911, Professor Donatelli was formerly assistant at the institute of pharmacology of the University of Florence, under Prof. Aiazzi Mancini.

Donatelli has published 168 original contributions to pharmacology, pharmaceutical and biological chemistry, anatomy and physiology. For the last years, he has been particularly interested in the toxicity and secondary effects of streptomycin. He has completed, also, comparative studies on the activity and secondary effects of synthetic antihistaminic drugs.

DENMARK

Mentality of Danes.—In a study illustrated by several tables and graphs, Dr. Alf Yde compared the mentality and behavior of Danes, Dutchmen and Finns (Reflections on the Use or Misuse of Medicine in Holland, Finland and Denmark). It is evident from this study that there are certain profound psychological and ethical differences between Danes and Dutchmen, as witness, for example, the far higher divorce rate in Denmark. Here, in 1937, it was 0.89 per thousand, whereas it was only 0.40 in Holland. In 1941, during the occupation of both countries by the Germans, the divorce rates per thousand in Denmark and Holland were 0.97 and 0.37, respectively. In 1948, Denmark was still much ahead of Holland in this respect, with 1.69 as compared with only 0.83 divorces per thousand. Another comparison concerns illegitimacy. In 1945, 10 per cent of the babies born in Denmark were born out of wedlock, whereas in Holland the figure was 1 to 2 per cent. Dr. Yde takes both divorces and illegitimate offspring to be a measure of the relative inferiority of the Dane in the field of mental hygiene.

Another touchstone by which he measures the mental level of Danes is their suicide rate, which is appallingly high both absolutely and in comparison with that in Holland and, to a less extent, in Finland. In 1948 in Denmark there were 251 suicides per million inhabitants. The corresponding figure for Holland was 66; for Finland it was 159. This tendency to commit

The items in these letters are contributed by regular correspondents in the various foreign countries.

suicide in Denmark has been notorious for the last hundred years and is said to reflect a high rate of manic-depressive constitutions. It has been calculated that the over-all insanity rate is much the same in Denmark and Finland, but the manic-depressive psychoses occur in 0.13 per cent of the Danish population and only in 0.025 per cent of the Finnish population. Another comparison concerns the consumption of the drugs of addiction in Denmark, Holland and Finland. In 1947, the consumption of codeine in Denmark was 277.9 Kg. per million inhabitants. The corresponding figure for Holland was only 48 and for Finland 94.5. Even in the choice of the method of committing suicide, Denmark, with her preference for hypnotics, differs from some of her neighbors. Dr. Yde concludes that the high consumption of codeine and morphine is indicative of a far higher incidence of mental depression in Denmark than in Holland, which for long has had a very low suicide rate.

Danish Red Cross Hospital Ship.—On January 23 the *Jutlandia* left Denmark bound for Korean waters. A year ago it belonged to the Danish merchant service, and its conversion into a hospital ship was an emergency decision taken after the outbreak of hostilities in Korea. In its issue for March 1951, the Danish Red Cross magazine has published an account by Dr. Karl Lehmann of this remarkable achievement. Some 500 men were employed on the operation of conversion and fitting out hospital accommodation for some 300 patients. Three elevators are provided for the transfer of patients from one deck to another. Space is provided for some 2,000 tons of water as well as an apparatus for converting 20 tons of salt water to fresh water every 24 hours. On one of the decks there is a dining room for the hospital staff of 93 persons. There are several operating theaters, one of which is for general surgery, another for lung surgery and another for work such as blood transfusion and changing bandages. Special provision is made for dentistry, including surgery of the jaws and face. Another operating theater is reserved for brain surgery. On the advice of American experts, accommodation has been provided for psychiatric cases, including three padded cells. A motor ambulance and various other motor vehicles are provided in order that the hospital ship can take over some of the duties of a land transport service in an emergency. Accommodation is also provided for the isolation of infectious cases. Commander Hammerich is in charge of the ship. He has had many years' experience as the head of the Danish National Red Cross Society.

Biologic Tests for Pregnancy.—Two biologic tests for pregnancy (the Galli-Mainini test on toads and the Friedman test on rabbits) have now given so much satisfaction that they have been adopted as a matter of routine in the Hormone Department of the State Serum Institute, to which samples of urine may be sent by doctors in doubt over the presence or absence of pregnancy. They are requested to accompany each sample of urine with a statement as to which of the two tests they prefer. The charge for the toad or bufo test (B.R.) is 15 kroner and for the rabbit or Friedman test (F.R.) 30 kroner. In his latest report on the subject, Dr. G. V. Thorborg, of the State Serum Institute, compared the two tests, whose specificity and reciprocal corroboration are quite remarkable in view of the familiar observation that biologic tests tend to be just short of 100 per cent in accuracy.

In the Galli-Mainini test, three sexually mature male toads are used after a microscopic examination of their urine has shown it not to contain spermatozoa. Two milliliters of the suspect urine, which should be as fresh as possible, but need not be morning urine, is injected under the skin of the toad's back, a second injection of 1.5 ml. being given an hour later. Three hours after the last injection a catheter specimen of the toad's urine is examined under the microscope. This now shows myriads of spermatozoa if the urine comes from a pregnant woman. In the Friedman test, virgin female rabbits are used after they have been isolated for four to five weeks. To make sure that there are no spontaneous changes in their ovaries, most rabbits undergo an exploratory laparotomy two days before the test. Ten milliliters of the suspect urine is now given by intravenous injection in the rabbit's ear, and 40 to 48 hours later the rabbit is killed and its ovaries are examined. The reaction is regarded as positive when the ovaries are found to be enlarged, hyperemic and the seat of ovulation points and numerous follicles containing blood.

Between April 26, 1950 and Jan. 19, 1951, more than 2,000 pregnancy tests have been carried out on toads at the State Serum Institute, more than half of them being supplemented by the Friedman test. Dr. Thorborg points out that not one of these tests on toads yielded a false positive reaction. The toad test is the quicker and cheaper, but the rabbit test may yield a positive result earlier in pregnancy. As a rule, the Friedman test elicits a definitely positive reaction about eight days after the first missed menstrual period and the Galli-Mainini test about 14 days after. Toward the end of pregnancy the Friedman test is probably the more reliable of the two. In cases of extrauterine pregnancy the Friedman test is again the more reliable. With these three reservations it may be said that the two tests are equally reliable. The Galli-Mainini test possesses the advantages of quickness (taking 24 hours instead of the 40 to 48 hours needed for the Friedman test), comparative technical simplicity and the modest housing accommodation required for toads. From the gynecologic department of the Frederiksberg Hospital comes a report by Dr. C. F. Felding on his instructive experiences with the toad test.

Death of Dr. C. I. Baastrup.—The death of the Danish radiologist Dr. C. I. Baastrup at the comparatively early age of 65 was due to cancer of the larynx, from which he had suffered for about a year. It was characteristic of his tenacity of life that he was at work in his hospital till the day before his death. His many technical studies and devices, accounts of which he published from time to time, gave him a well earned international reputation. The condition known abroad as "Kissing's spine" is called "morbus Baastrup" in the Scandinavian countries. The care and skill with which he created and administered the radiological department of the Bispebjerg Hospital reflected his genius for technical detail and for getting the best out of his subordinates. His genial personality made him a most charming host for the many countrymen and foreigners to whom he opened his doors.

SWEDEN

Perforated Gastric and Duodenal Ulcer Statistics.—In 1942 and again in 1945 Dr. Gustaf Petrén of Lund published comprehensive statistical studies of gastric and duodenal ulcers in Sweden. In *Svenska Läkartidningen* for April 6, 1951, he reported an investigation covering all of Sweden and drawing on the reports of 125 hospitals and various other sources. The number of cases of perforated ulcer coming to operation has increased enormously since 1930. In the five year period 1930-1934, the annual number of such cases per 100,000 inhabitants was 7.4. During the next five year period this figure had risen to 8.8, and in the six year period 1943-1948 it was up to 11.5. Again, the incidence of perforated ulcers coming to operation during the five year period 1944-1948 in a total of 28 hospitals varied greatly in accordance with whether the area concerned was urban or rural. Thus the annual incidence of these cases per 100,000 was as high as 16.2 in the city of Stockholm, whereas it was only 7.4 in the county of Blekinge. In the opinion of Dr. Petrén, this comparative immunity of a rural area was largely due to the peaceful rhythm of country life, with its stable composition and timing of meals. In 1935 only 34% of the population of Sweden was urban, whereas in 1946 this was the case with 43%. Between 1935 and 1946, the rural population of Sweden diminished while its urban population increased from a little over 2 million to nearly 3 million. By moving from the country to a town, the inhabitants of Sweden seem to incur a much greater risk of a perforated gastric or duodenal ulcer.

However, if between 1930 and 1948 the annual incidence of perforated ulcers has risen per 100,000 inhabitants from 6.9 to 12.1 for the whole of Sweden, it is consoling to find that in the same period the annual postoperative mortality has fallen from 21.4 to 10.1%. This striking improvement can be traced not so much to better facilities for transport and early operation as to modern methods for combating shock and infections. In 1947 the Sahlgren Hospital in Gothenburg did not have a single death among its 45 surgical cases of perforated ulcer.

Meeting of World Medical Association in Stockholm.—The organ of the Swedish Medical Association, *Svenska Läkartidningen*, reminds its readers from time to time of the chief items of interest in connection with the annual meeting of the World Medical Association (WMA) to be held in Stockholm Sept. 9-23, 1951. The council of the World Medical Association meets September 9-14, and the general assembly September 15-20. Representatives of the medical press are to meet on September 21, and the council is to meet again September 22-23. The arrangements for the meeting are in the hands of the international committee of the Swedish Medical Association. It is expected that most of the some 40 national medical associations, of which WMA is composed, will send one or two regular delegates and some will also send deputies and observers. Important international organizations, such as WHO, UNESCO and ILO, will be invited to send observers. When the wives of delegates are also counted, more than 200 persons will participate in this meeting. The general assembly will be held in the second chamber of the Riksdag and will deal, among other things, with medical education, sociomedical problems and cooperation between the medical world and certain bodies belonging to UNO. A special committee of the WMA is planning an international congress with medical education as its main theme. Another special committee is dealing with material collected from the sociomedical sphere of interest with particular reference to the points of view that have emerged during discussions in WHO and ILO. The Swedish Medical Association will be represented at the meeting of WMA by two delegates and two deputies. Each local branch of the Swedish Medical Association is invited to nominate an observer. Every member of the Swedish Medical Association will also be allowed to attend most, if not all, meetings of the general assembly.

Spiritual Welfare of Hospital Patients.—In 1950 the Swedish Medical Association was invited to draft a memorandum on spiritual welfare of hospital patients for the head of the government. This memorandum has now been published. Here it is pointed out that the discussion should not be limited to purely religious activities, but should be extended so as to embrace cultural problems in general. Reference is made to an inquiry on the subject addressed to 1,350 patients in various hospitals and sanatoriums in different parts of Sweden. The interest taken in this inquiry was so great that only 264 of these patients failed to send in an answer. Some 700 stated that they listened to the morning prayers on the wireless. Great interest was also taken in the sermons of hospital chaplains, and, while some 750 were anxious to listen to these sermons, there were only a little over 100 who took the opposite view. Only 46 patients expressed disapproval of religious services in hospital in principle, whereas some 960 held appreciative views on this subject. The patients were also invited to comment on the practice of a hospital chaplain going the round of hospital wards chatting with each patient. Most of the answers were in favor of this practice. Representatives of the Swedish Medical Association are also in favor of a hospital chaplain's being authorized to meet the needs not only of hospital patients but also those of the hospital staff.

Acute Anterior Poliomyelitis in 1950.—In a report issued by the Swedish ministry of health, a statistical account is given of the cases of poliomyelitis that occurred in 1950. An encouraging feature of this report is the improvement effected in the institutional provision made for paralytic cases, of which there were 1,279 reported in 1950. In the same period 490 nonparalytic cases were also reported. There were 129 deaths from poliomyelitis, i. e., about 10% of all the paralytic cases. In 209 cases, i. e., in 16% of the paralytic cases, the paralysis was of the bulbar type, and 133 of these patients were nursed in a respirator or iron lung. In 94 of these cases the disease proved fatal. This mortality of 71% is bad enough, but it compares favorably with earlier years, during which the mortality was 85 to 90%. Another change for the better is the fact that only six patients in need of after-care had to be sent home because such care could not be provided within a reasonable time. Such confession of defeat had to be made in 5 to 10% of the cases treated in 1948 and 1949 and in need of after-care. Among the 58 patients on whom tracheotomy was performed there were 24 who survived. To facilitate a comparison of these figures with the corresponding figures for other countries, it should be noted that the population of Sweden is now 7 million.

Death of Prof. Hjalmar Holmgren.—A singularly promising scientific career has been cut short by the death of Prof. Hjalmar Holmgren on February 21 at the early age of 45. As long ago as 1936 he published an important study of the daily variations in the fat content of the liver and other organs. In 1937, in conjunction with Jorpes and Wilander, he gave an account of investigations concerning the production of heparin by giant cells. He devised a new method for fixing giant cells and investigated their distribution in different parts of the body and under various conditions. His promotion in 1947 as a professor was related to his organization of a department for experimental histology at the Karolinska Institute in Stockholm. He had already made this department a most effective center for scientific research in various fields, including biochemistry and endocrinology. In the field of experimental endocrinology he made important contributions to the study of the thyrotropic hormone and of the growth of experimental tumors. His happy combination of youthful enthusiasm with a mature critical sense made him the ideal leader of a group of research specialists devoted to team work. Of a family that has endowed the medical world with many of its most distinguished members, Holmgren was a happy illustration of the benefits of heredity.

TURKEY

Semple Vaccine Prophylaxis in Rabies.—In the Turkish *Journal of Hygiene and Experimental Biology*, Dr. Abdulkadir Çilesiz reviews 16 years of antirabic prophylactic therapy by the Semple vaccine phenol method. When in June 1932 the Ankara Refik Saydam Institute of Hygiene was established, an antirabic institute was soon added. Dr. Abdulkadir Çilesiz, who gained his experience in the Pasteur Institute in Paris, became its chief. He introduced the Semple vaccine phenol method, and within less than six months 79 persons received the treatment. Before 1932, persons in need of prophylactic treatment were sent to the antirabic institute in Istanbul, Izmir and Sivas. Then the original Pasteur method was employed and later the Högyes as well as the modified Högyes-Philips method. In 1933 antirabic stations where the Semple vaccine method was employed functioned in 26 cities. There were no deaths or paralytic complications. The vaccine had been prepared by Dr. Abdulkadir Çilesiz at the Ankara Refik Saydam Institute of Hygiene antirabic department. At present there are 82 antirabic centers in the 63 provinces in which the Semple vaccine phenol method (14-20-24 days) is the only method employed. From 1933 to 1935, 2,989 persons received the treatment; 10 persons (0.32 per cent) died; no paralytic complications were observed. According to statistics published in 1935 in the *Bulletin of Hygiene* (League of Nations), of 59,804 persons who during 1933 were given the Semple vaccine phenol treatment at the world antirabic institutions, 259 persons (0.43 per cent) died; there were paralytic complications in four persons, two of whom recovered.

From 1933 to 1948, 55,219 persons received the Semple vaccine phenol treatment at the Ankara antirabic center. There were 70 deaths (0.10 per cent). Twelve patients (0.02 per cent) had paralytic complications; two of these patients died. In comparison, according to antirabic statistics of the World Health Organization, of the 135,058 persons who received antirabic treatment during 1935 to 1937, in the 102 antirabic institutions in many parts of the world, 487 persons (0.36 per cent) died. In addition, there were 20 patients who had paralytic complications, resulting in three deaths.

Health departments in urban communities are engaged in a continuous campaign for the extermination of stray cats and dogs, but in rural communities this is difficult. People are well aware of the danger of rabies and at the slightest danger apply for prophylactic treatment. At veterinary stations persons can have their pets vaccinated free of charge.

CORRESPONDENCE

SURGICAL TRAINING

To the Editor:—The major aim of all medical teaching is to insure the best possible care for the patient. In surgery this aim has been particularly expressed in the postgraduate training program. The evidence for the developing attainment of this goal is at hand. The most striking evidence is the splendid record of well trained young civilian surgeons in military service during World War II. Every year more and more graduated residents are choosing the smaller communities for practice wherever good hospital facilities are present or in prospect. Although there are still far from enough men of first rate background to carry out all the operations that are daily performed in this country, yet striking progress has been made and there is justified hope that within a reasonable period a well trained surgeon will be available to every citizen. During the past few years a threat to the realization of this program has arisen which demands the attention of every physician interested in the highest ideals of surgical practice.

The major steps in the developments up to the present time are three. The first was the promulgation by Halsted in the nineties of the principles of adequate surgical training, principles which with certain modifications still stand today in the form of the resident system. The second was the acceptance of control of hospital staffs through the principle of the closed hospital which began to receive widespread recognition in the first decades of the present century. Anyone who practiced through that period knows what a revolution this change effected in the practice of surgery. The quality of surgical performance in the closed hospital improved beyond measure. Outside the closed hospital jealousies and bitterness were often extreme. Those who believed in the principle regretted these emotional reactions but were willing to accept the burden of blame for the sake of their ideals for patient care. Perhaps in some instances there was truth in the unbridled accusations that the hospital staff was closed for the sake of the practitioner and not for the sake of the patient. It would be unwise to believe that the closing of hospital staffs throughout the country was motivated by selfishness alone. Finally, the establishment of accrediting boards to define the knowledge and accomplishments of aspirants to surgical practice completed the triad. In including this step as one of the three, one makes no assumption that the operations of the boards have been without mistake or that there are not safe and able surgeons outside the pale of the certificated. The influence of the principle of certification on the whole has been good; the boards have set standards by which every young man of the last 10 years who is looking toward perfecting himself in surgery has been able to guide his steps.

In citing the major stages of progress, the work of the American College of Surgeons in improving hospital organization and practice cannot be omitted. However, until recent years, the standards set by the founders of the college to justify admission to fellowship were not at the level of Halsted's ideals and the college did not fully function as a stimulus to self improvement. With recent developments, it is now taking its proper place.

It has been necessary to present this brief history of progress in surgical training and in the conditions of surgical practice as a background to the discussion of certain retrograde tendencies now obvious. If one were not aware of the pain and self sacrifice and effort that have gone into the attempt to improve surgical practice, one would not clearly see the potentially tragic effects of some powerful segments of current medical thought. The tragedy lies in a threat to good surgical care.

Despite the anachronistic standards of state licensing boards, the performance of surgical operations by an untrained man should now be considered obsolescent if not obsolete by both the public and the medical profession. It is the duty of the latter to convince the former of that truth. Unfortunately, a considerable portion of the profession is expressing itself more and more articulately to the contrary.

The reference, of course, is to the matter of "general practice," an unfortunate term that has persisted into a different sort of medical age from the time when it had real significance. Its persistence is understandable in the light of the affection and honor that in times past were woven about it. But the term has now lost its original meaning; its continuing use leads to the championing of unwise prerogatives. No one man can care for all disease, and the good "general practitioner" of today does not try to do so. Among the things that he is eager to give up to the specialist is surgery. One can hope that the term "family doctor" will replace the outworn designation; the "family doctor" should be a man trained in internal medicine primarily, who will practice the very best of that discipline and will recognize when the surgeon should be called.

No one with any respect for the medical profession as a whole or with any hope for its rehabilitation in the eyes of the public will decry the present efforts to reestablish the prestige of the family doctor or will refuse to share in the attempt to improve the conditions of his training and practice so that first rate diagnosis and the adequate care of most diseases will be available in the most remote hamlet. But such a frame of mind stultifies itself if it does not take into account modern progress in the knowledge and techniques of medicine and in the program of preparation for practice. There is no field of medicine where these have been so completely justified by results as in surgery. It is a step backward to assume that the "general practice" of today is the same as the "general practice" of 50 years ago.

It is clear, as already stated, that much surgery must still be performed by poorly trained men. That is an attribute of an age of transition, and the fact that more and more is being performed by well trained men is the note of hope. One cannot criticize the present conditions of practice, but one can take positive issue with any pronouncement of an obsolete principle. The pressure of numbers rather than of ideals is at work when hospitals are obliged to open their operating rooms to poorly trained men and are forced to include in their training programs a "rotating internship" to fit men for "general practice," which both by implication and often by express statement includes the performance of operations. This is a denial of all the hard-won progress of the past 50 years.

In commenting on the rotating internship, one can criticize only its surgical implications. If it is properly designed and directed, it should produce a man who is able and proud to be a family doctor and not a man to whom the practice of medicine without surgery is unrewarding in either prestige or drama. Insofar as surgery is concerned, it should include enough contact with surgical problems to enrich the house officer's knowledge of surgical disease and surgical diagnosis, including particularly the indications for surgical treatment and a sound understanding of the principles of asepsis and infection. There are many family doctors today who find a satisfying life in practicing good general medicine without surgical procedures. The "general practitioner" who does his own surgery must ultimately disappear from the picture through pressure from two sides; namely, first, the availability of well trained surgeons and second, the prestige of the conscientious family doctor of the sort defined.

It behooves all who believe in surgical progress and in the greatest safety to the patient to give voice to the opinion that the family doctor is not a surgeon. It may be an unpopular act, and the bitterness of long ago may be reawakened in some quarters. But that is no reason for shirking the task. The pres-

ent assumption that "general practice" must necessarily include surgical operations cannot be allowed to be accepted by default. Those who know the wrong of it should protest.

It is not unlikely that some persons, reading hurriedly, may misinterpret some parts of this letter. At the risk of repetition, therefore, I should like to make, in summary, the following categorical statements:

1. This discussion is not an attack on the family doctor or on the Academy of General Practice. The latter is doing admirable work in improving opportunities for acquiring knowledge by the family doctor and in raising his standards. The Academy is designed to improve service to the patient, just as is the surgical training program.

2. It is not an attack on the rotating internship when organized to produce well trained family doctors; however, it is critical of the rotating internship that assumes its graduates to be capable of performing general or special surgical procedures.

3. It is not an attack on the general practitioner who is now doing surgical work through force of circumstances. Many of these men are first rate surgeons, self-taught by long experience, who know their limitations. After all, efforts by men of their sort established the foundations of American surgery. This discussion is critical only of the assumption that this path to surgical proficiency is to be encouraged in these days.

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CHIROPRACTIC LEGISLATION

TO THE EDITOR:—Recently several of my friends at the University of Minnesota Medical School have written me concerning a release dated April 5, 1951, which was issued by the Washington Office of the American Medical Association and entitled *Bulletin No. 13—82nd Congress*. This release contained an item about the bill S. 1235 which I introduced on March 30 for Senator Magnuson. I have already written to your Washington office about this release but wanted you to have this word of explanation also.

I want it quite clear that I am not sponsoring this legislation. This is a bill sponsored by and written by Senator Magnuson. It is a matter of common courtesy in the Senate that when one of our colleagues is out of the city on an extended visit bills will be introduced in his behalf by other Senators. Senator Magnuson is now in Japan. His office asked me to introduce several bills for him and several items to be printed in the Congressional Record. This I did as a courtesy. I did not examine the materials since they were not mine, nor did I question the purpose or the objective of Senator Magnuson in his proposed legislation.

My position on veterans' medical care is well known. I have not sponsored any legislation in behalf of chiropractic treatment even though I have been requested to do so on several occasions. The Senate Labor and Public Welfare Committee, of which I am a member, has on several occasions refused to include chiropractic treatment or education in its medical assistance bills. I am most anxious to work with the responsible medical leaders in improving our Veterans Administration medical program.

Sincerely yours,
HUBERT H. HUMPHREY,
U. S. Senator.

BIBLICAL ALLUSIONS TO CLOTTING

To the Editor:—The extraordinary increase in recent years of coronary thrombosis and other thromboembolic episodes together with the recent discovery that many important drugs employed in medical practice have the undesirable property of accelerating the clotting time of blood—a subject in which I have been a pioneer—aroused an interest in the history of blood coagulation and of clotting in general. I recently published in the *Journal of the American Pharmaceutical Association* (March 1951) a paper on Shakespeare's references to clotting and blood-clotting drugs which received a great deal of comment. I thought it worth while, therefore, to write a few remarks on the allusions to clotting in the Bible. While there are no references to clotting phenomena in the New Testament, in the Hebrew Bible, the Old Testament, there are three passages of scientific interest. In these passages, the Hebrew word *quapha*, meaning to clot or curdle or congeal, is employed. Each passage deals with a different form of biochemical reaction to which the term clotting can be applied.

The first passage is in the Book of Job, chapter 10, verse 10, and is the classical reference to the early stages of embryonic development.

> 10. Hast thou not poured me out as milk
> And curdled me like cheese?
> 11. Thou hast clothed me with skin and flesh,
> And knit me together with bones and sinews

The second passage alluding to clotting or congealing is found in Exodus, chapter 15, verse 8, and is the most interesting one from the standpoint of medicine.

> The deeps were congealed in the heart of the sea

Note here a most remarkable rhetorical feature. Here is a metaphor taken from the physiology and pathology of the blood and heart applied to the "congealing" of water in the "heart of the sea." Every physician familiar with the Scriptures will immediately be struck by the analogy of the expression to the phenomenon of coronary thrombosis in which there is also a "congealing" of a fluid—"blood"—in the "heart" of a human being. In other words, the rather common occurrence of coronary thrombosis is rhetorically employed to describe an extraordinary phenomenon of Nature, namely, the dividing or congealing of the Red Sea.

The third reference in which the word *quapha* is employed also figuratively is in the prophecy of Zephania, chapter 1, verse 12. Here clotting is referred to the "settling" of wine, as follows:

> And it shall come to pass at that time
> That I will search Jerusalem with lamps;
> And I will punish the men that are settled on their lees
> That say in their heart, the Lord will not do good,
> neither will He do evil.

The idea conveyed by the above is according to both Hebrew and Christian commentators the same and is perhaps best expressed by the note of J. M. P. Smith in the International Critical Commentary on Zephaniah (page 202), which reads as follows:

> "Who are thickening upon their lees." The metaphor is based upon the treatment of wine in the process of its ripening. Compare Jeremiah, chapter 48, verses 11 & 12. These men have been left undisturbed in their false security. Just as wine left too long in such a condition thickens and loses strength, so these men have sunk into weak self indulgence, having lost all interest and concern for the higher things of life, and being solicitous only for their own bodily comfort and slothful ease.

Perhaps further light is shed on the above simile by verse 17 of chapter 1:

> And their blood shall be poured out like dust.

On superficial reading, of this verse, the trope "poured out like dust" seems highly catachrestic. One does not pour or spill dust or earth. The usual Biblical expression for shedding or pouring blood employs a simile or metaphor derived from pouring water and not pouring dust. On deeper thought, however, we can perceive the figure as well taken. The phenomenon of blood clotting according to all physiological authorities, such as Howell, Macleod or Best and Taylor, consists in the deposition in the form of fine crystals of fibrin not unlike particles of dust mixed with red and white blood cells and many fragmented platelets. In the opinion of at least one Hebrew scholar, the expression "And their blood shall be poured out like unto dust" does not refer to spilling blood in slaughter, but rather to the shedding of the blood inside the body and causing death through thickening and congealing, i. e., clotting. Although the above comments may be somewhat far stretched, these references to clotting are no more exaggerated in their poetic imagery than references to clotting in Shakespeare.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Chiropodists: Scope of Practice.—This was a mandamus action to compel the respondent, State Board of Medical Examiners, to cancel its order putting the petitioner on probation for five years for engaging in conduct beyond the scope permitted by his license to practice chiropody. From a judgment in favor of the respondent, the petitioner appealed to the district court of appeal, second district, division 3, California.

The California Business and Professions Code provides: "The certificate to practice chiropody authorizes the holder to practice chiropody. As used in this chapter: Chiropody means the diagnosis, medical, surgical, mechanical, manipulative, and electrical treatment of the human foot, including the nonsurgical treatment of the muscles and tendons of the leg governing the functions of the foot. No chiropodist shall do any amputation or use an anesthetic other than local."

The transcript of the proceedings shows that Mrs. Tuttle visited the petitioner's office and complained to him of pains in her toes and the groin, stating that she was not "sick, except for my legs and feet." The petitioner examined her, asked her a number of questions concerning her general condition, pregnancy, and menstrual periods. At this time he took her blood pressure, gave her a treatment consisting of "stretching the leg," administered a hypodermic injection of adrenal cortex in the right hip, x-rayed her feet, and prescribed 50,000 Units of Vitamin A. When the patient returned to the petitioner's office two days later he prescribed for her a proprietary remedy known as calcidin, the essential ingredient of which is iodide, and gave her a diet to improve her "poor muscle tone."

The only question presented on this appeal, said the district court of appeals, is whether there is evidence to sustain the finding of the trial court that the conduct of the petitioner transgressed the limited certificate issued to him as a licensed chiropodist.

The petitioner's witness, Dr. Billig, testified that the Board of Medical Examiners requires chiropodists to take review courses given by a licensed medical doctor in order to qualify for renewal of their licenses and that he had been the petitioner's instructor in such a course. The witness stated that the proprietary, calcidin, was routine procedure which he had used successfully in the treatment of cold feet and that he had so instructed the students taking courses from him; that during the course he had made reference to a substance known as adrenal cortex to be used to counteract an imperfect contraction of muscle fibre; that he believed the use of both calcidin and adrenal cortex to be within the purview of the Chiropodist Act and permissible for use by chiropodists in correcting poor muscle tone in the legs and feet. The petitioner testified that Mrs. Tuttle had come to him complaining of pains in her toes and in the groin; that he had been taught to prescribe calcidin as treatment for cold feet; that he had been taught to administer hypodermic injections of adrenal cortex to improve the poor muscle tone of the feet and legs; that he prescribed Vitamin A for treatment of the feet; that he advised a high protein diet in that such a diet had "value in all weaknesses." The testimony of the petitioner and Dr. Billig, said the court, was sufficient, if accepted as sound professional opinion, to prove that the petitioner's treatment of the patient was not in violation of the section of the Business and Professions Code quoted previously.

There was no testimony to the contrary in the hearing before the Board or upon the trial, said the District Court of Appeal. This was a question in the field of medicine beyond the scope of common knowledge. It called for expert testimony. It was improper for the Board to decide the questions involved upon the basis of the opinions held by the several members of the Board. Neither the board nor the court could render a just decision except in reliance upon expert testimony. The Board members apparently relied upon their own opinions as evidence. They were not witnesses, said the court, and the worth of their opinions could not be tested by cross examination. They were to decide factual issues and not merely to exercise discretion and judgment. Their decision was subject to review by the courts in which the evidence relied upon to support their determination would be subject to examination. Unstated and unsworn opinions of the Board members would not be before the court. They could not be considered for any purpose. The District Court of Appeal therefore concluded that there was no proof that the petitioner had violated the Business and Professions Code. Accordingly the judgment in favor of the respondent was reversed and the Board was directed to issue a writ annulling its order which placed the petitioner on probation for five years.—*Brennan v. State Board of Medical Examiners, 225 P. (2d) 11 California (1950).*

MEDICAL MOTION PICTURES

Epidemiology of Influenza: 16 mm., black and white, sound, showing time 11 minutes. Produced in 1950 by and procurable on loan from Communicable Disease Center, 50 Seventh Street, N.E., Atlanta 5 or on purchase ($16.76) from United World Films, Inc., 1445 Park Avenue, New York 29.

The generation which grew up since 1918 lacks the respect for influenza which those who lived through the terrible epidemic have. There are always sporadic cases of the disease and small epidemics here and there, but in general, one has come to think of influenza as a more severe form of a cold.

How this disease has become established as a distinct nosologic entity is well shown in this film. The story is illustrated with a case report of a patient against the background of historical development; interspersed with excerpts from a lecture by Dr. Andrews, the noted British investigator; flashes of global distribution of centers where the disease is studied; and a brief sketch of diagnostic tests. The epidemiology of the three specific viruses and the constant search for mutants are told in a fascinating manner which holds the spectator's interest from the beginning to the last scene. The film can be described as being of general educational value and is recommended for physicians, medical students and nurses. The photography and narration are good. However, some viewers may feel that the ocean scenes are overdone.

Intravenous Anesthesia and Tracheal Intubation: 16 mm., color, sound, showing time 45 minutes. Prepared by Glenn Potter, M.D., California Hospital, Los Angeles. Produced in 1950 by and procurable on rental or purchase from Billy Burke Productions, 7416 Beverly Boulevard, Hollywood 36, Calif.

This motion picture presents the author's technics for the intravenous use of barbiturates, with emphasis on thiopental sodium and touching on thiamylal (surital®) sodium. The addition of various forms of curare is discussed. Endotracheal intubation is demonstrated, including excellent views through the laryngoscope. The author's numerous mechanical devices are demonstrated, including a new laryngoscope with fenestrated blade to permit rotation of the epiglottis in difficult cases; a combined unit containing watch and sphygmomanometer dial; special bottle holder, arm board and connectors for the intravenous administration of barbiturates; airway fittings, and a new nonrebreathing valve. Application of the principles discussed is well demonstrated for brain, tongue, and nose and throat surgery. Contraindications are adequately presented. The anesthesiologist's numerous duties and responsibilities are ably reviewed; however, the practice of manipulation of operating room lights during administration of inhalation anesthesia is subject to criticism.

This presentation is well organized, clear and concise and is recommended for anesthesiologists. The photography and narration are excellent.

MEDICAL LITERATURE ABSTRACTS

AMERICAN

American Journal of Hygiene, Baltimore

53:1-120 (Jan.) 1951

Phagocytic Activity Against Plasmodium Lophurae of Macrophages from Ducks of Varying Degrees of Natural Resistance to this Parasite. S. Ben-Harel.—p. 1.
Effect of Polonium ^{210} and Selenium ^{75} in Experimental Schistosoma Mansoni Infection in Mice. N. P. Watts and K. P. McConnel.—p. 11.
Growth of Hemoflagellates in Dialyzing Sacs and Production of Growth Inhibitory Factor. H. Seneca and E. Henderson.—p. 17.
Brill's Disease: I. Etiology. E. S. Murray and J. C. Snyder.—p. 22.
Epidemiological Aspects of Histoplasmin, Tuberculin and Coccidioidin Sensitivity. C. G. Loosli, W. G. Beadenkopf, F. A. Rice and L. J. Savage.—p. 33.
Serum Alkaline Phosphatase in Monkeys and Man During Poliomyelitis. J. D. Ainslie, P. K. Stumpf and T. Francis Jr.—p. 58.
Lethal Effect of Triethylene Glycol Vapor on Dried Air-Borne Bacteria. O. H. Robertson and W. Lester Jr.—p. 69.
*Industrial Anthrax in the United States: Epidemiologic Study. A. H. Wolff and H. Heimann.—p. 80.
Studies on Resistance of Coxiella Burneti to Physical and Chemical Agents. S. E. Ransom and R. J. Huebner.—p. 110.

Industrial Anthrax.—The recent increase of human anthrax in certain industries, particularly those processing imported animal hair and wool, prompted the Division of Industrial Hygiene of the United States Public Health Service to study the situation. Evidence is presented that indicates that carpet wool, in contradistinction to apparel wool, is the agent chiefly responsible for industrial anthrax, and it is also shown that these wools are especially infective. Human anthrax attributable to the handling of animal hair is shown to be due essentially to goat hair. Human anthrax in the leather industry is shown to be due essentially to goatskins, particularly those originating in certain parts of Asia. The authors list hygienic measures that should be enforced in industries that process and handle imported hides, skins, hair and wools. All dust, dirt and sweepings should be incinerated. Blending should be conducted after scouring, whenever compatible with the manufacturing process. Drying of wool should be conducted at the maximum temperature compatible with the process. Finished products and dyed wool and yarn should be handled and stored in such a manner that there is no danger of cross contamination from raw materials. Protective clothing should be worn by employees in all occupations where an anthrax risk exists. Employees must be informed of the cause, nature and control of anthrax.

American Journal of Public Health, New York

41:139-262 (Feb.) 1951. **Partial Index**

Professional Services Under Medical Care Insurance. G. Baehr.—p. 139.
Recent Developments in Use of Blue Cross and Blue Shield Plans. E. A. van Steenwyk.—p. 147.
Epidemiologist's Reflections on Some Laboratory Tests in Brucellosis. W. Dalrymple-Champneys.—p. 152.
Characteristics of Global Rat Populations. D. E. Davis.—p. 158.
Comparative Study of Methods of Isolating Mycobacterium Tuberculosis. D. Gifford, F. McKinley and C. A. Hunter.—p. 164.
Role of Laboratory in Prevention of Irreparable Injury in Neurosyphilis. C. Lange and A. H. Harris.—p. 168.
Significance of Conference on Aging for Public Health. C. Tibbitts. —p. 176.
Observations of Attitudes and Behavior in Child Health Center. Sample Studies of Maternal Feelings, Dependency, Resistant Behavior, and Inoculation Fears. D. M. Levy.—p. 182.
Is There Science of Personnel Selection?—Aptitude. J. M. Stalnaker. —p. 191.
Integration of Cancer Activities into Local Health Department Program. A. E. Heustis.—p 198.

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Surgery, New York

81:1-144 (Jan.) 1951

Barium Modification with Methocel. M. M. Marks.—p. 6.
Fluid and Electrolyte Therapy in Surgical Patients. R. E. Homann Jr. —p. 10.
Results of Sigmoidoscopic Examinations at a Cancer Detection Center: Two-Year Study. H. W. Christianson and R. J. Tenner.—p. 14.
*Routine Examination of Lower Bowel: Results in 500 Asymptomatic Patients. V. T. Young.—p. 18.
Complications of Anorectal Surgery. L. R. Pearson.—p. 25.
Control of Hemorrhage Following Anorectal Surgery. M. E. Rolens. —p. 28.
Two New Methods for Reducing Discomfort After Hemorrhoidectomy. D. Hart.—p. 31.
Pre- and Postoperative Care in Anorectal Surgery. L. J. Johnson and F. W. Schilla.—p. 33.
Evaluation of Chloromycetin as Adjunct to Surgical Management of Lymphogranuloma Venereum and Segmental Ulcerative Colitis. R. J. Rowe.—p. 42.
Irritable Colon. G. T. Harding.—p. 55.
Hydrogen Peroxide Proctitis. R. E. Pumphrey.—p. 50.
Use of Sliding Grafts in Treatment of Anal Fissures. H. K. Belnap. —p. 63.
Contracted Anal Canal. D. C. Ditmore.—p. 67.
Stricture of Rectum: New Treatment. R. Turell.—p. 71.
Sodium Pentothal® with Caudal Anesthesia in Anorectal Surgery. S. R. Jones.—p. 78.
Role of Chlorophyll in Proctology. B. Horwitz.—p. 81.
Relation of Ascorbic Acid Plasma Levels to Anorectal Conditions: Preliminary Report. W. A. Scheffler.—p. 85.

Examination of the Lower Bowel in Absence of Symptoms.—Of 500 patients who had no complaints referable to the lower bowel, 138 (27.6 per cent) were found to have lesions. Some of these had admitted no symptoms but on questioning confessed that symptoms probably had been present. Some persons still denied symptoms after being confronted with evidence that they could not possibly be absent. Possibly, some of these had accepted conditions that would cause misery in others as being normal attributes of human existence. Patients with small hemorrhoids not likely to cause symptoms were not included among those with lower bowel disease. Only large hemorrhoids that would produce symptoms were included. There were 64 patients with such hemorrhoids among the 138 with pathologic lesions. Polyps were found in 44, diverticula in nine, fissures in eight, hypertrophic papillae in seven, pruritus ani in seven, cancer of the bowel in five, fistula and rectal prolapse in four each, melanosis coli in three, condyloma acuminatum in two, nonspecific proctocolitis in two and various other lesions in one patient each. The five patients with cancer were all operable. In no instance had the growth spread beyond the confines of the bowel, and in no case was metastasis to regional lymph nodes discovered. When the report was written all these patients were alive and showed no evidence of recurrence. These patients have a much more favorable prognosis than if the lesions had not been discovered until after the onset of symptoms.

American Journal of Tropical Medicine, Baltimore

31:1-146 (Jan.) 1951. **Partial Index**

Effect of Endochin on Experimental Toxoplasmosis. W. D. Gingrich and E. M. Darrow.—p. 12.
Sontoquine Naphthoate in Amebiasis. N. J. Conan Jr.—p. 18.
Aureomycin in Treatment of Yaws. E. H. Loughlin, A. Joseph and K. Schaeffer.—p. 20.
Effect of Orally Administered Aureomycin on Treponema Pertenue in Man. K. Schaeffer, E. H. Loughlin and A. Joseph.—p. 24.
Phase Contrast Microscopy for Demonstration of Treponema Pertenue in Yaws Lesions. E. H Loughlin, A. Joseph and K. Schaeffer.—p. 26.
Histoplasmin, Coccidioidin and Tuberculin Sensitivity in Honduras. V. Scott.—p. 27.
Salmonella Blegdam Infection: Report of Three New Cases. Ming-Yi Wu and J. Fournier.—p. 42.
Diagnosis of Schistosomiasis Japonica: IV. Studies on Schistosomiasis Japonica in Australian Air Force Unit. G. W. Hunter III, J. A. Dillahunt, E. C. Faust and others.—p. 50.
Relative Susceptibilities of Commonly-Used Laboratory Mammals to Infection by Schistosoma Mansoni. M. A. Stirewalt, R. E. Kuntz and A. S. Evans.—p. 57.
Hydatid Disease at Los Angeles County Hospital, 1936-1948; with Report of First Autochthonous Case from California. H. A. Tucker.—p. 83.
Hemoglobin Determination in Hookworm Disease Case-Finding. P. C. Beaver.—p. 90.

American Review of Tuberculosis, New York

63:121-230 (Feb.) 1951

Fluctuation of Tuberculin Reaction in Different Geographic Areas and Its Relationship to Resistance. J. D. Aronson.—p. 121.
Importance of Tuberculin Test in Differential Diagnosis of Pulmonary Lesions. C. E. Woodruff and W. L. Howard.—p. 140.
Endothelioma (Mesothelioma) of Pleura: Review with Report of Seven Cases, Four of Which Were Extirpated Surgically. L. A. Hochberg. —p. 150.
*Bronchogenic Carcinoma as Differential Diagnostic Problem in Pulmonary Disease: I. Carcinoma Arising from Major Bronchi Uncomplicated by Secondary Infection. J. H. Moyer and A. J. Ackerman.—p. 176.
Hemoptysis in Chest Clinic Patients. A. D. Chaves.—p. 194.
Clinical, Functional, and Needle Biopsy Study of Liver in Pulmonary Tuberculosis. M. Seife, B. J. Kessler, J. Hoffman and J. R. Lisa. —p. 202.
Ribs from Thoracoplasty as Possible Source of Homogenous Bone Grafts. P. F. Hausmann.—p. 210.
Absorption of Sodium Salt of Para-Aminosalicylic Acid (PAS) from Rectum. C. W. Rieber, H. Kuschinskin and M. M. Friedman.—p. 213.

Bronchogenic Carcinoma.—Bronchogenic carcinoma constitutes a difficult differential diagnostic problem. Despite recent advances in chest surgery, the prognosis of this disease has not been improved significantly, owing in part to its protean manifestations and failure to recognize these early. Nine cases of carcinoma arising from major bronchi and uncomplicated by secondary infection in men between the ages of 39 and 63 are reported on. Attention is focused on correlation of pathological, clinical and roentgenologic manifestations observed during different phases of the pathogenetic development of these tumors and on diagnostic problems presented by them. The pulmonary manifestations of bronchogenic carcinoma are for the most part contingent on the site of the origin of these tumors and the complications resulting from progressive bronchial occlusion. The extrapulmonary manifestations are dependent in part on the pulmonary changes and in part on the pathogenicity of the tumor and its tendency to dissemination. The prognosis is more dependent on the latter, since the primary lesion may be restricted to the bronchial mucous membrane and be so small as to present no clinical or roentgenologic pulmonary manifestations even though the disease is widely disseminated. Thus, an easily resectable tumor is not necessarily an "early" carcinoma and vice versa. Cough is the commonest symptom of bronchogenic carcinoma. It frequently occurs very early, before bronchostenosis or mucosal erosion. Hemoptysis in the absence of complicating factors is seen only after erosion of the tumor mass has taken place. Localized or unilateral wheezing usually represents partial bronchial occlusion. This is frequently accompanied by roentgenographic evidence of localized emphysema distal to the obstruction. This observation may also be made in the absence of bronchostenosis. Atelectasis becomes manifest after the bronchial lumen has been completely occluded. Although this finding is not specific for carcinoma, it represents endobronchial disease in the majority of instances. In the presence of atelectasis, bronchography and laminagraphy, in addition to bronchoscopy, may be of great aid for determination of the specific etiology. The hilar type carcinoma with peribronchial radiation is not the most frequently observed bronchogenic carcinoma. Intraluminal growth with progressive bronchostenosis has been noted much more frequently by the authors. Although the hilar type is characteristic when it does occur, similar roentgenographic pictures may be seen in other diseases, such as sarcoidosis, Hodgkin's disease and unresolved pneumonia with resulting fibrosis.

Cincinnati Journal of Medicine

32:1-46 (Jan.) 1951

The Doctor and the National Emergency. P. I. Robinson.—p. 1.

32:47-82 (Feb.) 1951

*Translumbar Arteriography: Preliminary Report. A. T. Evans.—p. 47.

Translumbar Arteriography.—A preliminary report is presented on more than 150 aortic punctures performed under intravenous thiopental (pentothal®) sodium anesthesia for translumbar arteriography. The puncture needle entered the aorta just under the left anterior border of the twelfth thoracic vertebra. An x-ray film was exposed while the last cubic centimeter of the contrast medium was being injected in the aorta and after that a second x-ray film was exposed for visualization of the renal vessels. The procedure requires a certain amount of technical skill for consistently good arteriograms to be produced. No fatalities and insignificant morbidity were observed. Translumbar arteriography is applicable in the diagnosis and/or prognosis of vascular abnormalities of the abdominal aorta and its branches as well as the iliac arteries and their immediate branches. Arteriography, as applied to renal arteries, arterioles and the convoluted tubules, has met the criteria of a perfect diagnostic instrument in selected cases. It can be used to demonstrate aberrant vessels to the normally positioned kidney, to demonstrate anomalous vessels to ectopic kidneys, to indicate the presence of renal tissue when it is not demonstrable by pyelography, to demonstrate the amount of blood supply to a kidney and thus to estimate the kidney's potential function, to demonstrate renal cystic masses by their avascularity, to visualize increased vascularity and pooling of contrast medium within a neoplasm of a kidney and as an aid in differentiation of the Goldblatt type of hypertension from other types. Arteriography was found valuable in determination of the type of therapy to be instituted in selected urological cases. With arteriography, the placenta was demonstrated by its large irregular vascular pattern in a limited number of cases. This aided in differentiation of placenta previa from the normally positioned placenta. Arteriography enabled the author to distinguish definitely between an aneurysm of the splenic artery and that of the renal artery. The procedure proved of definite value in the study of all intraabdominal vascular abnormalities.

Circulation, New York

3:163-320 (Feb.) 1951

*Tromexan-3,3'-Carboxymethylenebis (4-Hydroxycoumarin) Ethyl Ester: Experimental and Clinical Properties. G. E. Burke and I. S. Wright. —p. 164.
Clinical Evaluation of Dicumarinyl Derivatives with Metabolic Study of Radioactively Labeled Anticoagulants in Animals. E. P. Hausner, C. L. Shafer, M. Corson and others.—p. 171.
Spatial Vector Electrocardiography: Clinical Characteristics of S-T and T Vectors. R. P. Grant, E. H. Estes Jr. and J. T. Doyle.—p. 182.
Catheterization of Left Ventricle in Man: Study of Right Bundle Branch Block by Simultaneous Intracardiac Electrocardiography of Both Ventricles. M. F. Steinberg, A. Seligmann, I. G. Kroop and A. Grishman. —p. 198.
Situs Inversus of Abdominal Viscera with Levocardia: Report of Eight Cases Submitted to Blalock-Taussig Operation. M. D. Young and H. E. Griswold.—p. 202.
*Cortisone Therapy in Acute Rheumatic Carditis: Preliminary Observations. T. N. Harris, W. B. Abrams, T. F. P. Leo and J. P. Hubbard. —p. 215.
Effect of Ascending an Ordinary Flight of Stairs on Work of Heart: Observations on Normal Individuals and on Patients with Coronary Heart Disease. J. A. L. Mathers, H. I. Griffeath, R. L. Levy and J. L. Nickerson.—p. 224.
Pathology of Pulmonary Vascular Tree: II. Occurrence in Mitral Insufficiency of Occlusive Pulmonary Vascular Lesions. D. L. Becker, H. B. Burchell and J. E. Edwards.—p. 230.
Controlled Myocardial Injury Produced by Hypothermal Method. C. B. Taylor, C. B. Davis Jr., G. F. Vawter and G. M. Hass.—p. 239.
Effect of "Sympatholytic" Drugs on Cardiovascular Responses to Epinephrine and Norepinephrine in Man. E. D. Freis, J. C. MacKay and W. F. Oliver.—p. 254.
Effects of Bleeding on Electrolyte Excretion and on Glomerular Filtration. T. A. Lombardo, S. Eisenberg, B. B. Oliver and others.—p. 260.
Adhesiveness of Blood Platelets in Arteriosclerosis Obliterans, Thromboangiitis Obliterans, Acute Thrombophlebitis, Chronic Venous Insufficiency and Arteriosclerotic Heart Disease. M. E. Eisen, M. C. Tyson, S. Michael and F. Baumann.—p. 271.
Effect of Salt Loading and Salt Depletion on Renal Function and Electrolyte Excretion in Man. W. S. Wiggins, C. H. Manry, R. H. Lyons and R. F. Pitts.—p. 275.
Visualization of Coronary Arteries During Life. J. A. Helmsworth, J. McGuire, B. Felson and R. C. Scott.—p. 282.
Occupational Analysis of 580 Cardiac Clinic Patients. H. Bennett, A. Brittis, L. Bronstein and others.—p. 289.
Renal Factor in Congestive Heart Failure. E. A. Stead Jr.—p. 294.

Tromexan.—Experiments on rabbits, mice and rats that were fed the coumarin derivative 3,3'-carboxymethylene bis (4-hydroxycoumarin) ethyl ester (tromexan) showed that tromexan prolonged the prothrombin time significantly when administered in therapeutic doses. For clinical evaluation of tromexan, 112 patients with thromboembolic diseases were treated. Tromexan has approximately one-fifth the potency of bishydroxycoumarin

(dicumarol®), when compared milligram per kilogram in terms of effect on the prothrombin time obtained. Tromexan has a faster absorption and utilization rate than bishydroxycoumarin as measured by the level of hypoprothrombinemia produced within 18 to 24 hours after the initial dose. Arbitrarily selected initial doses of 1,200, 1,500 or 1,800 mg. were given. The duration of the anticoagulant effect is about one-half to one-fourth that of bishydroxycoumarin. Prothrombin times returned to normal 48 to 60 hours after a single initial dose. Satisfactory maintenance of a therapeutic level of hypoprothrombinemia was achieved by single daily doses of 600 to 900 mg., but 15 to 20 per cent of the patients required divided doses of 300 mg. three times a day or 600 mg. twice a day to keep the prothrombin time within therapeutic levels. In general, an interval greater than 24 hours should not elapse between doses of the drug, if an effective level is to be consistently maintained. Three patients with preexisting renal disease showed evidence of microscopic hematuria. Tromexan appears to be less prone to produce hemorrhagic complications. Further alteration of liver function and the albumin-globulin ratio was noted in one patient with liver disease.

Cortisone in Acute Rheumatic Carditis.—Four patients between the ages of 4 and 22 with definite rheumatic carditis of moderate or severe degree were treated with cortisone. The dosage used was 112.5 mg. for the three older patients, who all weighed approximately 90 pounds (40.8 Kg.), and 75 mg. for the patient aged 4. For the first five to 15 days after the institution of the treatment with cortisone there was no objective improvement or there was actual clinical evidence indicative of exacerbation or spread of the inflammatory process. Thereafter, there was rather rapid subsidence of the signs of inflammation, per se, so that the temperature, erythrocyte sedimentation rate and pulse rate had returned to approximately normal limits within three weeks of treatment, without a corresponding improvement in cardiac observations, other than some electrocardiographic changes. At this time cortisone was discontinued. Within a few days thereafter, each of the patients showed a sharp exacerbation of signs of rheumatic infection, and on resumption of treatment with cortisone these signs disappeared rapidly. Consequently, it was possible to reduce the dosage of the drug until it was withdrawn completely within two weeks. The general signs of inflammation thus seemed to respond fairly well to this treatment. The cardiac signs were worse in two of the patients and questionably so in a third patient at the conclusion of the treatment in comparison with the observations before treatment with cortisone was instituted. These results suggest the possibility of a dichotomy between the effects of cortisone on the cardiac changes and those on the signs of inflammation of the body as a whole. The possibility of a difference between the effects of cortisone in rheumatoid arthritis and in rheumatic fever is also suggested.

Industrial Medicine and Surgery, Chicago

20:49-98 (Feb.) 1951. **Partial Index**

*Environmental Lung Cancer. C. W. Hueper.—p. 49.
The Dermatologist Looks at Everyday Medical Care in Industry. E. A. Levin.—p. 63.
Early and Late Complications of Head Injuries. W. D. Abbott.—p. 79.
Critical Study of 50 Recurrent Hernias. B. C. Kilbourne.—p. 83.
Medicine and Industrial Accident Prevention. I. R. Tabershaw and W. Moorman.—p. 86.

Environmental Lung Cancer.—After commenting on the increase in lung cancer, the sex distribution and the histologic types, Hueper cites evidence for a correlation of lung cancer with occupation and with exposure to irritative chemical agents. The number of these environmental respiratory cancers is relatively small, however, when compared with the total number of cancers of the lung. Although all known environmental cancers have followed the inhalation of exogenous cancerigens present in the form of dust, fume, mist, fog, vapor or gas, consideration should be given to the possibility that some cancers of the respiratory tract may be due to agents entering the organism through the alimentary or cutaneous route and either being excreted through the respiratory organs or having special metabolic or chemical affinities to these tissues. The history of the discovery of environmental respiratory cancers has shown that the concentration of such tumors among members of restricted occupational groups usually led to their discovery. Industrial physicians and specialists in pulmonary diseases might make valuable contributions to the etiology and epidemiology of respiratory cancers by investigating thoroughly the occupational history of their patients with respiratory cancer.

Journal of Bacteriology, Baltimore

61:101-242 (Feb.) 1951. **Partial Index**

Studies on Chemotherapy of Vaccinia Virus: I. Experimental Design for Testing Antiviral Agents. K. A. Brownlee and D. Hamre.—p. 127.
Observations on Chemical Inhibition of Streptomyces Griseus Bacteriophage Multiplication. D. Perlman, A. F. Langlykke and H. D. Rothberg Jr.—p. 135.
Observations of Phage Output and on Anaerobic Lysis of Lysogenic Strains of Bacillus Megatherium. H. J. Welshimer.—p. 153.
Heterogenous Character of Streptomycin-Dependent Mutants of Mycobacterium. D. Yegian and V. Budd.—p. 161.
Characterization of Action of Lysozyme on Staphylococcus Aureus and on Micrococcus Lysodeikticus. R. A. Kern, M. J. Kingkade, S. F. Kern and O. K. Behrens.—p. 171.
Electron Micrographic Counts of Bacteriophage Particles. S. E. Luria, R. C. Williams and R. C. Backus.—p. 179.
Inhibition of Yeast Carboxylase by Homologous Antiserum. V. Z. Pasternak, M. G. Sevag and R. E. Miller.—p. 189.
Observations on Strain of Neisseria Meningitidis in Presence of Glucose and Maltose: I. Growth Studies. C. Fitting and H. W. Scherp.—p. 203.
Observations on Problem of Brucella Blood Cultures. M. J. Pickett and E. L. Nelson.—p. 229.

Journal of Infectious Diseases, Chicago

88:1-104 (Jan.-Feb.) 1951. **Partial Index**

Immunological Relationship Between Viruses of Japanese B. Encephalitis and Japanese Equine Encephalomyelitis. K. F. Burns.—p. 1.
Erythrocyte Destruction in Tuberculous Animals Following Tuberculin Injection. C. Sandage, N. Brandt and J. M. Birkenland.—p. 9.
Observations on Pre-Erythrocytic Stages of Plasmodium Relictum, Plasmodium Cathemerium, and Plasmodium Gallinaceum in Various Birds. C. G. Huff.—p. 17.
Course of Pneumococcal Infection in Mice During Treatment with Antibacterial Substances and Adrenocortical Extract. E. P. Vollmer.—p. 27.
St. Louis and Japanese Encephalitis in Hamsters Following Natural Feeding of Viruses. F. M. Schabel Jr.—p. 32.
In Vitro and Chemotherapeutic Studies with Chloramphenicol (Chloromycetin) Against Hemophilus Pertussis. R. W. Sarber and M. J. Hemans.—p. 50.
*Effect of Pituitary Adrenocorticotropic Hormone (ACTH) on Experimental Poliomyelitis and Equine Encephalomyelitis. A. Milzer.—p. 54.
Respiratory Metabolism of Extra-Embryonic Membranes of Chick Embryos in Relation to Multiplication of Agent of Feline Pneumonitis. J. W. Moulder and E. Weiss.—p. 68.
Inhibitory Action of Saliva on Diphtheria Bacillus: Hydrogen Peroxide, Inhibitory Agent Produced by Salivary Streptococci. R. Thompson and A. Johnson.—p. 81.
Adaptation of Avian Malaria Parasite Plasmodium Lophurae to Continuous Existence in Infant Mice. R. B. McGhee.—p. 86.
Resistance of Lungs to Streptococci as Affected by Ascorbic Acid Blood Level or Histamine Administration. W. J. Nungester, D. W. Garrison, P. G. Williams and others.—p. 98.

Effect of ACTH on Poliomyelitis and Encephalomyelitis.—A study was made of the effect of pituitary adrenocorticotropic hormone on mice inoculated with the Lansing strain of poliomyelitis virus. Similar experiments were also done with mice inoculated with western equine encephalomyelitis virus. The hormone was found to have neither prophylactic nor therapeutic effects.

Journal of Investigative Dermatology, Baltimore

16:1-70 (Jan.) 1951

Comparative Study of Use of Hydrophilic Absorption Ointment Bases. S. R. Perrin and A. Halpern.—p. 7.
Nature of Inclusion Body of Verruca Vulgaris: Histochemical Study of Nucleotids. H. Blank, M. Buerk and F. Weidman.—p. 19.
Acetylcholine "Blocking Effect" of "Antihistaminic" Drugs as Measured by Electrophoresis of Mecholyl in Human Subjects. D. J. Perry, J. A. Hosmer and T. H. Sternberg.—p. 31.
Action of Collagenase on Skin and Anti-Collagenase Factor in Human Serum. R. B. Stoughton and A. L. Lorincz.—p. 43.
Experimental Miliaria in Man: IV. Sweat Retention Vesicles Following Destruction of Terminal Sweat Duct. W. B. Shelly.—p. 53.
Simultaneous Symmetrical Paired Comparison Method in Evaluating Results of Grenz Ray and of X-Ray Therapy. S. L. Hanfling and I. H. Distelheim.—p. 65.

Journal-Lancet, Minneapolis

71:43-82 (Feb.) 1951

Tracheotomy—One Solution for Pulmonary Problems in Critically Ill Patient. R. W. Dickman and I. D. Baronofsky.—p. 43.
Headache Related to Low Back Pain. R. J. Dittrich.—p. 47.
Genetics and Medical Practice. R. C. Anderson.—p. 49.
Management of Difficult Labors. W. B. Stromme.—p. 53.
Acrodynia Associated with Mercury Poisoning. P. M. Bancroft, R. S. Grant and F. H. Tanner.—p. 56.
Diagnosis and Treatment of Chronic Occlusive Disease of Peripheral Arteries. N. W. Barker.—p. 58.
Surgical Treatment of Convulsive Disorders. L. A. Titrud.—p. 63.
Veratrum Viride in Treatment of Essential Hypertension: Report of 40 Cases. F. B. Faust.—p. 65.
Dr. George E. Fahr—Great Physician and Teacher Par Excellence. O. H. Wangensteen.—p. 69.

Journal of Neurosurgery, Springfield, Ill.

8:1-134 (Jan.) 1951

Pathological Anatomy and Angiography of Intracranial Vascular Anomalies. O. Sugar.—p. 3.
*Dural Sinus Venography as Aid to Diagnosis in Intracranial Disease. B. S. Ray, H. S. Dunbar and C. T. Dotter.—p. 23.
Hemodynamic Effect of Unilateral Carotid Ligation on Cerebral Circulation of Man. H. A. Shenkin, F. Cabieses, G. van den Noordt and others.—p. 38.
Observations on Interrelationships of Intracranial Pressure and Cerebral Blood Flow. H. W. Ryder, F. F. Espey, F. V. Kristoff and J. P. Evans.—p. 46.
Surgical Experiences with Arteriovenous Anomalies of Brain. R. C. Bassett.—p. 59.
Specific Treatment of Intracranial Aneurysms: Experiences with 143 Surgically Treated Patients. J. L. Poppen.—p. 75.
Observations on Resection of Superior Longitudinal Sinus at and Posterior to Rolandic Venous Inflow. R. Jaeger.—p. 103.
*Complications of Angiography. R. Dunsmore, W. B. Scoville and B. B. Whitcomb.—p. 110.
Complications of Ligation of Internal Carotid Artery. H. C. Voris.—p. 119.

Dural Sinus Venography in Intracranial Disease.—This paper describes methods of investigation of the intracranial venous system, including (*a*) direct injection of contrast medium into the superior sagittal sinus through a catheter introduced into the sinus, (*b*) retrograde injection of contrast medium through a catheter introduced into the basilic vein of the arm and passed upward into the internal jugular vein to the superior bulb and (*c*) direct measurement of the venous pressure. The relative filling of the transverse sinuses by injection of the superior sagittal sinus in 12 normal subjects is recorded. The retrograde venogram with the catheter at the superior bulb of the internal jugular vein showed good filling with contrast medium of the superior and inferior petrosal sinuses and less often of the cavernous and transverse sinuses of the same side. There was also good filling of the vertebral, orbital and facial veins and the pterygoid plexus. It appears that normally there should be filling of at least the petrosal and cavernous sinuses and the vertebral and pterygoid plexuses of veins. The normal venous pressure in the superior longitudinal sinus was between 120 and 150 mm. of water. The authors describe nine cases in which abnormal patterns of the intracranial venous system were revealed following injection of contrast medium into the superior sagittal sinus. In two cases meningiomas and in one case a fibrosarcoma had invaded the sagittal sinus; in two cases neoplasms had invaded the transverse sinus. There was thrombosis of the sagittal sinus and of the transverse sinus in the sixth and seventh cases respectively. In the last two cases, there were abnormal patterns of the intracranial venous system following ligation or resection of one transverse sinus. Catheterization of the internal jugular vein may be done in a needlessly roundabout manner, but the method is feasible and involves less risk of damaging the jugular vein than direct injection. The catheter in the lumen of the sinus insures against accidental injection of iodopyracet solution (diodrast®) outside the sinus. The most important practical uses to which the described methods can be put at present are the demonstration of obstruction of the superior sagittal or transverse sinuses. In the case of neoplasms this simplifies decision of the extent of the operation. In the case of thrombosis a more accurate diagnosis and evaluation of the adequacy of the anastomotic veins is possible. Other advantages may become evident with wider use.

Complications of Angiography.—Attention is called to the potential hazards of cerebral angiography. The present study is based on a series of 147 carotid angiograms performed with 35 per cent iodopyracet solution (diodrast®) on 108 patients in the years 1946 to 1950. The series constitutes 30 cases of brain tumor, 17 of aneurysm, 19 of subarachnoid hemorrhage, 12 of cerebral thrombosis, 7 of degenerative disease, 4 of subdural hematoma and 19 undiagnosed cases. Complications occurred in 14 of the 108 cases. The authors feel that a far higher proportion of complications have occurred than is indicated in the literature when delayed complications are included. From 1940 to 1946, 22 angiograms performed by one of the authors and limited to cases of suspected aneurysm were not accompanied by complications. However, since World War II, when angiography was extended to include all cerebral diagnostic problems regardless of age or condition, there have been complications in nearly 10 per cent of the cases. Of 108 cases and 147 angiograms, there were 14 complications. These included three fatalities, four cases of hemiplegia with permanent residual deficits, two cases of transitory hemiplegia, two cases of convulsions, one case of carotid artery thrombosis, one case of injury to the cervical sympathetic chain and one case of iodopyracet solution skin sensitivity. The technical details of proficiency, quantity, methods and medication used in arteriography apparently are not important factors in the etiology of complications. The selection of cases is important, since the older age group, especially those having thrombotic tendencies or other evidence of impaired cerebral circulation, are most likely to have complications. The delayed nature of most of the serious complications of cerebral angiography suggests that cerebral thrombosis secondary to irritative vasospasm probably plays an important part in the etiology.

Journal of Urology, Baltimore

65:163-350 (Feb.) 1951

*Artificial Kidney: Preliminary Report. O. S. Lowsley and T. J. Kirwin.—p. 163.
Urological Survey of Anuria and Oliguria with Guide to Treatment. F. Farman, K. A. Lemon and H. L. Briskin.—p. 177.
Transthoracic Nephrectomy (Left) for Wilms' Tumor. V. J. O'Conor and J. R. Head.—p. 193.
Serum Albumin in Uremia: Clinical Investigation Correlated with Reversible Uremia in Dogs. R. Baker.—p. 197.
Retrocaval Ureter: Report of Four Cases and Review of Literature. J. E. Heslin and C. Mamonas.—p. 212.
Congenital Exstrophy of Urinary Bladder: Late Results of Treatment by Coffey-Mayo Method of Uretero-Intestinal Anastomosis. B. M. Harvard and G. J. Thompson.—p. 223.
Complete Cessation of Persistent Bladder Papillomatosis Following Nephro-Ureterectomy and Segmental Cystectomy for Primary Papillary Carcinoma of Ureter. W. W. Scott.—p. 235.
Absorption of Certain Constituents of Urine from Large Bowel of Experimental Animal (Dog). W. H. Boyce.—p. 241.
Early Correction of Congenital Chordee and Hypospadias. O. S. Culp.—p. 264.
Hypospadias: Concept of Treatment. H. B. Mays.—p. 279.
Allergic Granulomas of Prostate Gland. M. M. Melicow.—p. 288.
Leiomyoma of Prostate. J. J. Kaufman and R. R. Berneike.—p. 297.
Heating Effects of Short Wave Diathermy on Prostate of Dog. J. Hickman, J. F. Herrick, K. G. Wakim and C. F. Schlotthauer.—p. 311.
Experimental Study of Solvent Action of Versene on Urinary Calculi. B. S. Abeshouse and T. Weinberg.—p. 316.
Clinical Experience with Terramycin in Treatment of Refractory Urinary Tract Infections. R. M. Nesbit, J. Adcock, W. C. Baum and C. R. Owen.—p. 336.
SKF 538-A: New Topical Anesthetic for Use in Urethra: Preliminary Report. J. E. Dees and S. S. Ambrose Jr.—p. 346.

Artificial Kidney.—A new artificial kidney is described that is compact, mechanically efficient and satisfactory with regard to treatment of the failing kidney. This apparatus has several advantages over artificial kidneys previously described. It is relatively small and may easily be moved into the patient's room. Its parts may be satisfactorily sterilized by immersion in an antiseptic solution. The heparinized blood of the patient is removed from the venous system and moved through the dialyzer by an efficient mechanical pump at an appropriate and readily controlled rate of flow, and the volume of blood that is contained in the dialyzer at any one time is only 300 cc. The electrolyte solution is at all times maintained at a suitable temperature by a thermostat in the machine. It is not necessary to change the electrolyte solution, which may be used over and over again during

the period of dialysis. It is possible not only to remove electrolytes, such as sodium or potassium, but to add to these electrolytes in the blood, if one increases their concentration in the electrolyte solution. In vitro experiments with this apparatus demonstrated that low molecular weight nitrogenous products are effectively removed from aqueous solutions. Animals made uremic by nephrotoxic drugs were satisfactorily treated by use of the artificial kidney. A limited use of the apparatus on human patients has proven it to be an efficient substitute for the kidney for various lengths of time. The average blood urea nitrogen in all patients at the start of the dialysis was 130 mg. per 100 cc., and, after three hours of dialysis, was 99 mg. per 100 cc. Experience was not sufficiently great to indicate how long one may utilize the Lowsley-Kirwin artificial kidney effectively before the patient's kidneys will have to be relied on to do the work required. The authors consider it advisable to dialyze the patient for four or six hours and then to give him an equal period of rest before treatment is continued. If the patient is in coma, the use of the dialyzer may be continuous. The patients experienced no unpleasant postdialysis reactions. Immediate symptomatic relief was experienced in two cases.

J. Venereal Disease Information, Washington, D. C.

32:27-50 (Feb.) 1951

Syphilis Among Navaho Indians. C. S. McCammon, F. J. Dufner and F. W. Felsman.—p. 28.
*Results of Penicillin Therapy for Neurosyphilis at Bellevue Hospital. B. Dattner, E. W. Thomas and L. de Mello.—p. 33.
Penicillin Levels in Spinal Fluid After Intramuscular Injection of Procaine Penicillin. R. D. Wright, J. D. Thayer, F. P. Nicholson and R. C. Arnold.—p. 39.

Penicillin Therapy for Neurosyphilis.—Of 438 patients treated with penicillin alone for various types of active neurosyphilis and followed up by spinal fluid examinations for more than six months, the disease became inactive in 400 and remained inactive for periods varying from six to 75 months. Of the 38 therapeutic failures, 31 were retreated (25 were retreated only once, 3, twice and 3, three times). Of the retreated patients, 27 had normal spinal fluid findings when last examined; two have not yet been followed up for six months after retreatment. At various times, the authors have used the following drugs for the treatment of neurosyphilis: aqueous solutions of sodium penicillin, penicillin in oil and beeswax, and procaine penicillin in oil combined with aluminum monostearate. All these, in total doses of at least 6,000,000 units given over 15 to 19 days, have given good results. Because of its relatively few side effects and its excellent therapeutic effect, procaine penicillin in oil combined with aluminum monostearate is now preferred for the treatment of all types of neurosyphilis. The routine treatment with this product consists of 15 daily injections of 600,000 units each.

Medical Annals of District of Columbia, Washington

20:1-58 (Jan.) 1951

Place of Medical College in National Economy. D. F. Smiley.—p. 1.
Simple Method of Measuring Q-T Ratio. J. E. Smith.—p. 6.
*Recent Advances in Surgical Treatment of Peripheral Vascular Disease. G. de Takats.—p. 9.
Fundamentals of Tumors. V. J. Dardin.—p. 14.
Problem of Alcoholic. R. F. Gayle Jr. and M. W. Foster Jr.—p. 24.

20:59-118 (Feb.) 1951

Clinical Impressions of New Intravenous Barbiturate Surital Sodium: Preliminary Report. W. A. Spencer and C. S. Coakley.—p. 59.
Some Experiences with Chlortrimeton in Treatment of Duodenal Ulcer. N. H. Isaacson, J. L. Kelley Jr. and B. Blades.—p. 63.
Carcinoma of Pancreas. P. C. Kiernan.—p. 71.
Medical Management of Epilepsy. F. M. Forster.—p. 76.
Gonococcal Septicemia: Report of Case. H. L. Hirsh and W. Kurland.—p. 81.
Function of Appendix: A Theory. P. A. Caulfield.—p. 83.

Surgical Treatment of Peripheral Vascular Disease.—In his discussion of acute arterial embolism the author's chief concern is the early recognition and treatment of a single arterial embolus. One of the misconceptions about arterial embolism seems to be that a massive embolus breaks off from the left auricle or ventricle and occludes a major arterial bifurcation, with the classic symptoms of numbness, pallor, motor paralysis and pain resulting. Observations on patients with chronic fibrillation reveal that small showers of emboli with their warning symptoms often precede a major embolus. When a patient who has had fibrillation or who has had a coronary occlusion experiences numbness or tingling in his extremities, it should be remembered that these symptoms may be the forerunners of massive embolization, and heparin therapy should be maintained for at least two weeks. A second type of arterial embolus again does not occlude a major pathway but creates such a reflex vasoconstriction that the femoral or brachial pulses may disappear. Heating, paravertebral blocks and intra-arterial injections of papaverine, procaine hydrochloride or heparin may restore the pulse, warm the extremity and restore the motor power. If these measures fail to improve the circulation, embolectomy should be considered. Embolectomy can be done too early or unnecessarily but is usually done too late. The physician who sees the patient in the home should start treatment by injecting 50 mg. of heparin intravenously. This injection can be repeated every 3 hours. Immediate hospitalization and embolectomy is advisable. Another peripheral vascular disease discussed is thromboangiitis obliterans. The first principle of treatment here is not to attack the disease surgically in its acute stage but to treat it conservatively until a quiescent period is reached. Sympathectomy may be useful, but a paravertebral sympathetic block should be tried first. Arteriosclerosis with and without diabetes responds surprisingly well to sympathectomy. Prophylactic sympathectomy of the remaining extremity is advisable. The principles of amputation for peripheral vascular disease are described.

New England Journal of Medicine, Boston

244:199-238 (Feb. 8) 1951

*Lumbar Sympathectomy for Arteriosclerosis of Lower Extremities. E. A. Edwards and C. Crane.—p. 199.
Problem of Medical Laboratory Technologist. R. A. MacCready.—p. 204.
Educational Requirements of the Medical Technologist. P. M. Richardson.—p. 204.
Training of the Medical Technologist. E. Judd.—p. 206.
Problems in Maintenance of Adequate Laboratory Staffs. D. A. Nickerson.—p. 207.
Effect of Cortisone in Sarcoidosis. M. Sones, H. L. Israel, M. B. Dratman and J. H. Frank.—p. 209.
Progress in Medical Care of the Veteran. F. B. Carroll.—p. 213.
Medicine as Social Instrument: Tropical Medicine. W. A. Sawyer.—p. 217.

Sympathectomy for Arteriosclerosis.—Medical therapy having been disappointing in arteriosclerosis of the lower extremities, an increasing number of patients have been subjected to lumbar sympathectomy. The authors report on 100 patients who have been subjected to this operation. Twenty-seven were diabetic. Following the operation there were two hospital deaths and six early thigh amputations. Ninety-two patients left the hospital improved. The patients were followed for varying periods up to three years and a few for nine years. Nine more patients died during the follow-up period. The 89 patients now living have done well. The affected foot has been almost invariably better after unilateral operation than the one not operated on. There has been only one further amputation. Patients with necrosis down to the bone proximal to the toes had such poor results that this finding may constitute a contraindication to the operation. A moderately unfavorable influence was exerted by the presence of diabetes and a lesser influence by other visceral disease and perhaps also by severe hypertension. The previous loss of the contralateral limb was an unfavorable factor. Although a good temperature response to paravertebral or spinal anesthesia predicts a good result from operation, failure to respond to the test bears little or no relation to the outcome. The authors feel that the operation should be more widely employed, because its general effect on the patient and on the limb is very satisfactory.

Pennsylvania Medical Journal, Harrisburg

54:1-96 (Jan.) 1951

Headache Mechanisms and Their Relation to Diagnosis and Management. G. A. Wolf Jr.—p. 25.
Review of Therapeutic Application of Antihistaminics. G. E. Farrar Jr.—p. 31.
Medical Treatment of Cataract. A. E. Town and A. E. Rakoff.—p. 35.
Relationship of Pathologist to General Practitioner. T. W. McCreary.—p. 39.
Present Concepts of Early Treatment of Burns of Hand. P. C. Iverson.—p. 41.

Philippine Medical Association Journal, Manila

26:491-536 (Nov.) 1950. **Partial Index**

Summary of Experiences with Adrenocorticotropic Hormone (ACTH) on Collagen and Allergic Diseases. F. C. Bocobo.—p. 499.
Perennial Rhinitis. E. A. Cleve.—p. 503.
Complete Inversion of Uterus: Case Report. J. T. Mendoza, O. Y. Romero and I. F. Manuel.—p. 512.
Urology in General Practice. L. F. Torres Jr.—p. 514.

26:537-594 (Dec.) 1950. **Partial Index**

Schistosomiasis Japonica in American Soldiers in Philippines: Clinical and Laboratory Study of 297 Treated Cases. O. W. Burtner.—p. 537.
Tubed Iris Tongue Modification of Iridencleisis. J. Tamesis.—p. 555.
*Hookworm Anemia in Filipino Children. E. Stransky and D. F. Dauis-Lawas.—p. 561.
Skin Lesions Benefited by Vitamin A. J. G. Tolentino.—p. 564.

Hookworm Anemia in Filipino Children.—Three stages of blood changes have been distinguished in hookworm disease. The first stage, of "compensated anemia," is characterized by increased erythropoietic activity of the bone marrow, which is sufficient to maintain the equilibrium between blood formation and destruction; the second stage is characterized by anemia, microcytosis and hypochromia and further increase in the erythropoiesis, and the third stage by symptoms of aplastic anemia and a general wasting of the bone marrow. Only two of the 15 patients were females; this, like other reports, shows the higher incidence in males. Fourteen of the 15 patients were in the second stage of anemia, and one was in the third. Evidence is presented that hookworm anemia is due to (1) loss of blood because of the blood-sucking worms and (2) increased demand for iron and proteins for maintenance of a normal hemoglobin and serum protein level. Besides iron and protein deficiency, multiple vitamin deficiency and secondary infections may be regarded as additional factors. Anthelmintic and iron therapy are the accepted treatments, but treatment by anthelmintics alone has been largely ineffective. Large doses of iron had to be given for three or four weeks before any improvement could be observed in the cases here reviewed. Other observers have found that the combined administration of iron and anthelmintics was no more effective than iron therapy alone.

Proc. Staff Meet. Mayo Clinic, Rochester, Minn.

26:49-64 (Jan. 31) 1951

*Effect of Terramycin on Intestinal Bacterial Flora of Patients Being Prepared for Intestinal Surgery. W. H. Dearing and G. M. Needham.—p. 49.
Viomycin in Tuberculosis of Guinea Pigs Due to Streptomycin-Sensitive and to Streptomycin-Resistant Tubercle Bacilli. A. G. Karlson and J. H. Gainer.—p. 53.
Struma Ovarii Causing Ascites and Hydrothorax (Meigs's Syndrome). R. H. Baskin Jr. and V. S. Counseller.—p. 60.

Effect of Terramycin on Intestinal Flora.—Hospitalized patients being prepared for surgical treatment of intestinal lesions were given a standard diet of minimal residue type, and a daily saline cathartic to make the stools soft or liquid. A series of enemas was administered one to two days before operation. Each patient received 750 mg. of terramycin orally, four times daily. A specimen of stool was sent to the bacteriologic laboratory each morning, promptly after it had been passed. In most cases all culturable micro-organisms, except Proteus and Pseudomonas organisms, yeasts and certain coagulase negative micrococci, were removed. Observations on 68 patients convinced the authors that terramycin is as effective as aureomycin as an antibacterial agent on the intestinal flora. They recommend that for preoperative intestinal antisepsis terramycin be given in doses of 750 mg. four times daily for three or three and one half days. However, as has been observed with aureomycin, the ability of terramycin to eliminate the susceptible bacteria from the intestinal tract may be impaired by the existence of intestinal obstruction, intestinal fistulas or perforations of the intestine with associated local abscesses.

Psychoanalytic Review, Albany, N. Y.

38:1-102 (Jan.) 1951. **Partial Index**

Catharsis in Group Psychotherapy. S. R. Slavson.—p. 39.
Psychological Mechanisms in Art Production. E. P. Mosse.—p. 66.
Case of Brief Psychotherapy by Sigmund Freud. R. Sterba.—p. 75.

Public Health Reports, Washington, D. C.

66:57-88 (Jan. 19) 1951

Statistical Studies of Heart Disease: VIII. Mortality from Heart Disease Among Negroes as Compared with White Persons. M. Y. Pennell and J. L. Lehman.—p. 57.

66:89-128 (Jan. 26) 1951

Medical Care for Public Assistance Recipients. W. P. Dearing.—p. 89.
Medical Services and Social Security Act Amendments of 1950. S. J. Mushkin.—p. 98.

66:129-162 (Feb. 2) 1951

Tuberculosis Control: Total Program. R. J. Anderson and E. T. Blomquist.—p. 132.
Community-Wide Chest X-Ray Survey: III. Social Work. S. Bloom.—p. 139.

66:163-190 (Feb. 9) 1951

Cooperation Between Health and Welfare Agencies—A Health Officer's View. L. A. Scheele.—p. 163.
Resume of Public Health Service Grant-in-Aid Programs Providing Medical Services. E. F. Warner and E. Flook.—p. 167.

66:191-222 (Feb. 16) 1951

Accuracy of Supplemental Medical Information on Birth Certificates. A. M. Lilienfeld, E. Parkhurst, R. Patton and E. R. Schlesinger.—p. 191.
Q Fever in Southern California: XII. Aureomycin Treatment of Dairy Cattle Naturally Infected with Coxiella Burnetii. L. Luoto, R. J. Huebner and H. G. Stoenner.—p. 199.
Survey of Brucellosis in Slaughtered Hogs. N. B. McCullough, C. W. Eisele and E. Pavelchek.—p. 205.
Plague in the Territory of Hawaii: I. Present Status of Plague Infection, Island of Hawaii. B. Gross and D. D. Bonnet.—p. 209.

Radiology, Syracuse, N. Y.

56:165-320 (Feb.) 1951

Patterns of Lobar Collapse as Observed Radiographically. M. Lubert and G. R. Krause.—p. 165.
Evaluation of Aortography in Abdominal Diagnosis. L. R. Sante.—p. 183.
Radiation Therapy of Carcinoma of Vagina. F. Buschke and S. T. Cantril.—p. 193.
Roentgen Appearance of Central Fat Tissue of Kidney: Its Significance in Urography. F. Windholz.—p. 202.
Simple One-Stage Method of Double-Contrast Study of Colon. R. D. Moreton, E. M. Cooper and E. F. Foegelle.—p. 214.
Study of Pneumoencephalograms Before and After Prefrontal Lobotomy (Freeman-Watts Technic). I. Meschan and J. B. Scruggs Jr.—p. 222.
Use of Photographic Films for Monitoring Stray X-Rays and Gamma Rays. R. B. Wilsey.—p. 229.
Roll-Film Apparatus for Rapid Serial Filming. W. H. Thompson, M. M. Figley and F. J. Hodges.—p. 242.
Irradiation of Bone Lesions in Presence of Metallic Intramedullary Fixation. L. F. Peltier and C. M. Nice Jr.—p. 248.
Case of Ileo-Ileal Intussusception of Unusual Etiology. H. H. Richardson.—p. 251.
Hemangioma of Bone. S. F. Oosthuizen and J. Barnetson.—p. 256.
Identification of Right and Left Sides in Roentgenograms by Permanent Cassette Marker. C. B. Holman and J. D. Camp.—p. 260.

Review of Gastroenterology, New York

18:79-158 (Feb.) 1951

Review of Some Unusual Forms of Perforation Complicating Benign Peptic Ulcer. M. Feldman.—p. 89.
Parenteral Fluids in Surgical Patient, with Special Reference to Pre- and Postoperative Care in Serious Gastrointestinal Lesions. H. M. Young and J. M. McGowan.—p. 96.
Primary Torsion of Omentum. J. A. Sterling and R. Goldsmith.—p. 106.
Acute Perforation of Gastric and Duodenal Ulcers: Report of 600 Cases. J. B. O'Donoghue, M. B. Jacobs and J. B. O'Donoghue Jr.—p. 113.
Effect of Antacid Preparations on Serum Aureomycin Levels. M. L. Williams and D. J. Weekes.—p. 128.
Intestinal Symptoms in Nongastrointestinal Lesions. B. J. Ficarra.—p. 131.
Esophageal Hiatus Hernia: Report of Case with Multiple Associated Abnormal Findings. E. W. Lipschutz.—p. 135.

Rhode Island Medical Journal, Providence

34:1-60 (Jan.) 1951

Diagnosis and Treatment of Heart Disease: Abstract of Six Lectures. F. Easton.—p. 17.
Pathology of Ionizing Radiation. R. M. Maynard.—p. 23.
Malignant Lymphoma of Gastro-Intestinal Tract. A. V. Migliaccio and V. M. Pahigian.—p. 26.
Role of Physician in Rhode Island Cash Sickness Program. T. H. Bride.—p. 59.

Surgery, Gynecology and Obstetrics, Chicago

92:129-256 (Feb.) 1951

*Use of Smear of Urinary Sediment in Diagnosis and Management of Neoplasm of Kidney and Bladder. J. H. Harrison, T. W. Botsford and M. R. Tucker.—p. 129.
Simple Pattern for Competent Hemorrhoidectomy. P. C. Blaisdell.—p. 140.
Functional Restoration of Hypospadias Deformities: with Report of 60 Completed Cases. L. T. Byars.—p. 149.
Early Surgical Treatment of Tuberculosis of Hip in Children. W. M. Roberts and F. S. Webster.—p. 155.
*Adenomatous Polyps of Colon and Rectum. A. F. Castro, G. W. Ault and R. S. Smith.—p. 164.
Carcinoma in Region of Papilla of Vater: Study of Cases in Which Resection was Performed. E. M. Miller, M. B. Dockerty, E. E. Wollaeger and J. M. Waugh.—p. 172.
Tumors in Spinal Cord: Primary Extramedullary Gliomas. I. S. Cooper, W. M. Craig and J. W. Kernohan.—p. 183.
Endogenous Allergy to Steroid Hormones: Nature of Certain Disorders Related to Ovarian Function. G. P. Heckel.—p. 191.
Serum Antiproteases in Normal Pregnancy: Comparison with Changes Observed in Neoplastic Disease. P. M. West, J. Hilliard and A. C. Mietus.—p. 209.
Observation on Absorption of Bacitracin: Blood Levels Following All Administration. A. B. Longacre and R. M. Waters.—p. 213.
Effect of Penicillin on Bacteremia Accompanying Acute Diffuse Peritonitis. W. J. Williams, W. K. Runyeon, H. H. Zinsser and H. A. Zintel.—p. 217.
Response of Distal Colon to External Stimuli: In Relation to Autonomic Nerve Section for Ulcerative Colitis. R. J. Schlitt, J. J. McNally and J. W. Hinton.—p. 223.
Amniotic Fluid Embolism, Infrequent Cause of Maternal Death. H. W. May and F. D. Winter.—p. 231.
Lymphoid Polyps (Benign Lymphoma) and Malignant Lymphoma of Rectum and Anus. E. B. Helwig and J. Hansen.—p. 233.

Smear of the Urinary Sediment in Diagnosis of Neoplasms.—Exfoliation of epithelial cells is characteristic of urinary tract epithelium, and desquamation increases when inflammation, calculus or neoplasm is present. By repeated examination of the urinary sediment neoplastic cells may be detected in the urine before symptoms occur and before it is possible to demonstrate neoplasm by either cystoscopic examination or roentgenographic methods. When such cells are found, cystoscopic examination should be repeated. If this is done, tumors that are detected can be treated earlier than would have been the case otherwise. Harrison and his associates present their experience with this method in 614 selected patients, all of whom had had urinary symptoms at some time. Well detailed smears of urinary sediment were obtained by the following technique: 30 cc. of freshly voided or catheterized urine is centrifuged for five minutes. The supernatant fluid is removed, and the sediment is covered at once with 5 cc. of 95 per cent alcohol. The sediment is spread evenly over a glass slide that has been previously thinly filmed with egg albumen. Partial drying is necessary for firmer attachment of the sediment to the slide. The smear is now fixed for a minimum of 10 minutes in a mixture of equal parts of ether and 95 per cent alcohol, and this is stained by the same procedure as is used for vaginal smears. Of the 614 patients, 82 had vesical or renal carcinoma. All the 67 patients with vesical carcinoma had demonstrable neoplastic cells in the urine. Three of 15 patients with renal cancer had "false negative" smears (no tumor cells in the urine). There were 15 "false positive" results in 532 patients who did not have demonstrable renal or vesical cancer. This method of study has been especially useful in follow-up of patients after conservative surgery for tumor of the bladder by leading to earlier discovery of recurrence.

Adenomatous Polyps of Colon and Rectum.—This report is based on a clinical study of 352 adenomatous polyps of the colon and rectum in 270 patients. The results of biopsy of the polyp showed that 49 patients had a total of 53 malignant adenomas. Although the incidence of adenomatous polyps was higher in males, the incidence of malignancy was higher in females. Follow-up with proctoscopic examinations was carried out for three years in benign lesions and for five years in malignant growths. Fifty-nine patients received no treatment, because they either refused it or did not return. In the other patients, coagulation, excision or segmental resection was done. The most important symptom in cases of adenomatous polyps is bleeding from the rectum. That these lesions may be discovered early, every opportunity for proctoscopic examination should be taken. The number of polyps discovered in routine studies of healthy persons is much greater than the number seen because of symptoms definitely attributable to them. Thorough examination of the colon and rectum (including a barium enema) is recommended in patients with adenomatous polyps. A more radical type of operation is recommended for malignant adenomatous lesions removed by the transabdominal approach. If local resection is done for malignant adenomatous polyps of the rectum, frequent follow-up examinations are imperative. Radical surgery should be resorted to if there is recurrence.

Wisconsin Medical Journal, Madison

50:125-224 (Feb.) 1951

*Encapsulated Carcinoma of Breast. E. E. Eckstam, M. B. Dockerty and S. W. Harrington.—p. 146.
Primary Repair of Facial Defects with Rotation Flaps. V. B. Hyslop and S. K. Wynn.—p. 153.
Drug Eruptions Due to Antihistaminics. J. J. Barrock.—p. 156.
Infectious Mononucleosis with Severe Meningoencephalitic Complications: Report of Case. L. McNeel.—p. 159.
Analysis of 271 Consecutive Cases Seen by Psychologic Service Unit in Milwaukee. R. Headlee.—p. 161.
Echinococcus Cyst of Liver: Report of Case. A. J. Jurishica.—p. 168.
Self-Expression and Self-Discipline: Dualism in Education. K. E. Kassowitz.—p. 179.
Epidemic Keratoconjunctivitis: Report of Three Cases. R. A. Moses.—p. 182.

Encapsulated Carcinoma of Breast.—The authors undertook the present study to determine the histologic types that compose the group of encapsulated carcinomas of the breast and to see whether prognosis and other characteristics were significantly different from those associated with carcinoma of the breast in general. Sixty cases of encapsulated, circumscribed or demarcated carcinoma of the breast were seen at the Mayo Clinic from 1910 to 1944. These comprised approximately 1 per cent of the cases of mammary cancer. A total of 56 lesions from 55 patients were analyzed. Most of the data agree with those for carcinoma of the breast in general. The main symptoms were a mass or pain of some sort. The skin was attached to about 40 per cent of the lesions, retraction of the nipple was associated in 12 per cent and axillary nodes were palpable in association with 25 per cent. On gross inspection of the specimen, about half the carcinomas were well encapsulated. Microscopically, none were completely encapsulated and there was some invasion of the capsule in all cases. An inflammatory reaction about the tumor was noted in more than a third of the cases. The lesions were grades 3 and 4 in 82.2 per cent of the cases. Chronic fibrous and chronic cystic mastitis were the most frequent associated pathologic conditions. Involvement of the axillary nodes was associated with only 21 per cent of the lesions. The over-all three and five year survival rates were 73.7 and 66.7 per cent, respectively. Only lymphatic spread could explain the metastatic lesions in the fatal cases, and hematogenous spread in addition had to be postulated to explain the lesions in half of the fatal cases.

Yale Journal of Biology and Medicine, New Haven

23:269-360 (Feb.) 1951. **Partial Index**

Growth Curves of Influenza Virus Based on Hemagglutination Titers in Individual Embryonated Eggs. M. W. Freymann, I. Tamm and R. H. Green.—p. 169.
Effect of Phospholipids on Inhibition of Growth and Respiration in Yeasts by Sodium Benzene Dodecyl Sulfonate. V. M. Cutter Jr. and K. S. Wilson.—p. 277.
Care of Premature Infants on University Service, Grace-New Haven Community Hospital. R. E. Cooke and G. F. Powers.—p. 282.
Preliminary Observations on Effect of Aureomycin, Terramycin, Tibione, Combined Tibione and Streptomycin, and Chloromycetin on Morphology of Liver in Man. R. Yesner and P. Kunkel.—p. 299.
Collateral Respiration in Normal and Diseased Lung. G. E. Lindskog.—p. 311.
Effects of Prolonged Alcohol Ingestion on Liver of Rat Under Conditions of Controlled Adequate Dietary Intake. G. Klatskin, H. M. Gewin and W. A. Krehl.—p. 317.
Manifestations of Vitamin Deficiency During Aureomycin and Chloramphenicol Therapy of Endocarditis Due to Staphylococcus Aureus: Report of Case. H. M. Gewin and G. J. Friou.—p. 332.

FOREIGN

Acta Medica Scandinavica, Stockholm

139:1-78 (Dec. 30) 1950

Coronary Infarction and Gout. E. Ask-Upmark and L. Adner.—p. 1.
Urethane Tolerance Tests in Leukemia Patients. B. E. Hallgren.—p. 7.
Pancreatogenous Steatorrhoea. M. Seip.—p. 15.
Cancer of Pancreas. Clinical and Pathological Study. L. Thamsen, N. Hjorth, A. R. Christensen and M. Bjørneboe.—p. 28.
Diagnosis of Infarct and Aneurysm of Posterior Wall in Electrocardiogram. L. Siapak and H. Partilla.—p. 42.
Mechanism of Gros Titration and Formogel Reaction. J. C. M. Verschure.—p. 51.
*Palindromic Rheumatism. K. Wassmann.—p. 55.
Role of Hypophysial-Hypothalamic System in Pathogenesis of Erythremia and Symptomatic Polycythemias. E. Haynal and F. Graf.—p. 61.

Palindromic Rheumatism.—Wassmann reports on four patients with the symptoms of palindromic rheumatism and briefly reviews the literature on this disorder, giving particular attention to the report published by Hench and Rosenberg in 1944. The term palindromic is derived from the Greek word for recurrent and denotes the most characteristic feature of the disorder. The disease is rare; Hench and Rosenberg estimate its frequency at about 5 in every 4,000 cases of all forms of rheumatic disorders of joints and muscles. Solis-Cohen considered the disorder to be angioneurotic, and Kahlmeter regarded it as an allergic disorder because of the simultaneous occurrence of other allergic manifestations. Palindromic rheumatism is characterized by acute attacks of swelling, redness and tenderness of a single joint or several joints, accompanied by pain but usually without fever. The intervals between the attacks are variable, whereas the duration of the attacks in the individual patient is always much the same, varying from a few hours to a few days in different patients. Gouty arthritis and intermittent hydarthrosis are the disorders that must be considered in the differential diagnosis. Differentiation from gouty arthritis is not difficult, because a rise in the uric acid content of the serum, tophi and roentgenologic changes are never found in palindromic rheumatism. Similarities of the latter disease to intermittent hydarthrosis are more conspicuous than the differences, and, moreover, there seem to be transitional forms, for which reason Parkes Weber's suggestion that intermittent hydarthrosis be included under the term palindromic rheumatism seems justified. Treatment of palindromic rheumatism usually fails, but the prognosis is favorable in that the disease produces no chronic changes of the joints.

Brasil-Médico, Rio de Janeiro

64:291-302 (Dec. 2 and 9) 1950. **Partial Index**

*Rupture of Ectopic Pregnancy: Report on 134 Cases. L. F. Cezar de Andrade.—p. 291.

Rupture of Ectopic Pregnancy.—During a period of 10 years Cezar de Andrade observed 134 cases of ruptured ectopic pregnancy in a municipal emergency hospital. The diagnosis was made on the basis of the menstrual history and the typical symptoms of rupture, which were present in most cases. It was confirmed in some cases by bimanual gynecologic examination of the cul de sac of Douglas or by puncture of the cul de sac. In these circumstances the sac is very painful and tense, and pressure elicits sudden extreme local pain. All patients who were seen promptly after the rupture were subjected to immediate operation. The eight patients who were seen several hours or days after occurrence of rupture or immediately after a second severe rupture were considered in two different groups: (1) those who were in good general condition and (2) those with acute anemia due to hemorrhage. In the former the diagnosis was confirmed in the usual manner, and an immediate operation was performed. In those with acute anemia any diagnostic pelvic examination was interdicted. Preoperatively they were given whole blood transfusions, intravenous fluids and analeptics. Transfusions were also indicated during and after the operation. In the cases reported by the author rupture of ectopic pregnancy occurred during the first month of pregnancy in the majority of cases. The pregnancy was tubal in all cases but one, it which it was ovarian. The operation consisted in salpingectomy by Delbet's technique in all cases but one. Partial oophorectomy was performed in the case of ovarian rupture. The author emphasizes the importance of a careful closure of the abdominal wall, in three planes, in operations for rupture of ectopic pregnancy. Early ambulation of the patient is contraindicated. Postoperative treatment is also described.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology, London

63:1-42 (Jan.) 1951. **Partial Index**

*Dermatitis Herpetiformis: Follow-Up and Survey of Treatment. G. A. G. Peterkin.—p. 1.
Unsealed Hanging-Drop Technique for Investigation of Microsporum in Hair. C. J. La Touche.—p. 8.
Treatment of Tinea Capitis Without Fungicides. R. W. Carslaw.—p. 16.
Heparin Tolerance Test in Lupus Erythematosus. P. Borrie.—p. 21.
Porokeratosis (Mibelli). H. Haber and A. Porter.—p. 28.

Dermatitis Herpetiformis.—Of 105 patients with dermatitis herpetiformis who were treated over a 24 year period, 42 were questioned concerning their progress. The age incidence revealed that in Edinburgh, at least, the disease is not rare in children, as 22 cases of the 105 occurred in patients under 5 years of age. Of the 42 patients followed up, 16 were clinically cured, in seven the disease was quiescent and in 19 was still active. In six of the 42 patients and possibly in one other the eruption began shortly after vaccination, while in one the dermatosis had been much severer since vaccination. That dermatitis herpetiformis occasionally starts just after vaccination has been observed for over 50 years. No evidence could be produced that the disease is due to a filtrable virus. Of 24 patients treated with arsenic, seven were cured and remained so for periods varying from one and one half to 16 years. No patient was cured by sulfapyridine, although six are able to control the disease over long periods with minimal dosage. Only one patient with the disease has been treated in Edinburgh with aureomycin, with no improvement whatsoever. Treatment with aureomycin raises the problem of the difficulty of differentiating dermatitis herpetiformis from pemphigus vulgaris. There is no single absolute point of difference. Often the clinical picture of dermatitis herpetiformis gradually changes into that of pemphigus vulgaris. The author used aureomycin in one patient who had pemphigus vulgaris; it had no beneficial effect, but it caused a general exfoliation of the skin lasting for about 10 days. Aureomycin had no effect either in two cases of pemphigus foliaceus or in a case of pemphigus vegetans.

British Journal of Ophthalmology, London

35:1-60 (Jan.) 1951

Unusual Retinal Detachment, Possibly Sex-Linked. A. Sorsby, M. Klein, J. H. Gann and G. Siggins.—p. 1.
Common Pathological Basis of Nervous Ocular Symptoms in Chronic Glaucoma: Preliminary Note. G. Cristini.—p. 11.
Measurement of Binocular Eye Movements of Subjects in Sitting Position. M. P. Lord.—p. 21.
*Choroideremia: Report of Three Cases in Three Generations. R. F. Lowe.—p. 31.
Degeneration and Regeneration of Corneal Nerves. B. Rexed and U. Rexed.—p. 38.
Aureomycin in Trachoma. M. A. Shah.—p. 50.

Choroideremia.—Choroideremia in the male is progressive; night-blindness in childhood is followed by progressive loss of sight and advancing field defects in youth and adult life and complete blindness in old age. Choroideremia is not due to congenital absence of the choroid with spared macular areas but is the result of an inherited form of progressive retinal degeneration resembling retinitis pigmentosa. A woman with this disease has a characteristic fundus picture but develops no defect in vision. Progression is slow and of a minor degree. Typical fundus changes in a female show her to be a transmitter, whereas any woman who does not have the stigmas of choroideremia in her fundi cannot pass it to her descendants. This form of hereditary transmission is called sex-linked conditional or provisional dominance. The defective gene is located in the X chromosome. Any person with even minor manifestations will transmit the disease according to the chances of sex-linked inheritance. An afflicted male may be told that neither his sons nor any of their descendants will suffer from the disease and that all his daugh-

ters will have good sight, although they will have signs of the disease in a mild form. The affected females will transmit the disease to half their sons, who will eventually become blind and to half their daughters, who will have no significant disability but will pass on the disease to their descendants in similar proportions. In this paper Lowe presents three cases of choroideremia. Two males from alternate generations showed the disease in its severe form, and the female in direct line in the intervening generation showed it in the benign form of the female transmitter.

British Medical Journal, London

1:263-316 (Feb. 10) 1951

*Role of Somatotrophic Hormone in Production of Malignant Nephrosclerosis, Periarteritis Nodosa, and Hypertensive Disease. H. Selye. —p. 263.
Method for Detecting Cortisone in Body Fluids. C. L. Cope.—p. 271.
Unusual Auras in Two Cases of Epilepsy in Childhood. B. D. Wyke. —p. 272.
Sixth-Nerve Palsy After Lumbar Puncture and Spinal Analgesia. R. Bryce-Smith and R. R. Macintosh.—p. 275.
Torsion of Great Omentum. H. A. Hashemian.—p. 276.
Spontaneous Pneumothorax from Secondary Sarcoma of Lung. A. B. Shaw.—p. 278.
Haemolytic Transfusion Reaction Due to Anti-Lewis[a] Agglutinin. S. I. de Vries and H. S. Smitskamp.—p. 280.

Somatotropic Hormone.—This paper discusses interrelations between the hypophysis, the adrenal cortex and the peripheral target organs in what Selye has termed the general adaptation syndrome. Experiments on female piebald rats revealed that the administration of electrophoretically pure somatotropic hormone, which has mineralocorticotropic effects, produces nephrosclerosis with variable degrees of nephritis, polyuria, myocarditis, periarteritis nodosa and hypertension. The experimental animals were sensitized to mineralocorticoid actions by unilateral nephrectomy and an excess sodium chloride intake, but this sensitization in itself did not produce such changes. These toxic manifestations parallel those found in animals receiving excesses of desoxycorticosterone acetate or lyophilized anterior pituitary material. It is assumed that somatotropic hormone is the active principle responsible for the toxic actions of lyophylized anterior pituitary material. The lesions caused by somatotropic hormone are considered to be due to a peripheral synergism between it and the desoxycorticosterone acetate-like mineralocorticoids. The cardiovascular and renal damage normally caused by somatotropic hormone overdosage is prevented if cortisone is simultaneously administered in doses large enough to produce adrenocortical atrophy. Somatotropic hormone also increases the sensitivity of the rat to the production of experimental arthritis. Simultaneous treatment with cortisone exerts a contrary effect. However, larger doses of cortisone are required to inhibit experimental arthritis in the somatotropic hormone-treated animal than in the one not receiving the latter hormone. Apparently the antiarthritic effect of cortisone is inversely proportional to the amount of somatotropic hormone present in the organism. In the production of the so-called diseases of adaptation somatotropic hormone appears to play a part as important as that of pituitary adrenocorticotropic hormone. The former is responsible for the activity of mineralocorticoids, which stimulate defensive granuloma formation, while the latter regulates the secretion of glucocorticoids, which inhibit such defence reactions.

Cardiologia, Basel

17:315-374 (No. 6) 1950

The Q_1 Wave in Left Heart Block. J. Laham, O. Gialloreto and J. Lenegre.—p. 315.
Digitalis Therapy in Chronic Cardiac Decompensation. H. Siedek and S. Tomek.—p. 334.
Alterations of the Intra-Auricular Potential. E. Coelho, J. M. da Fonseca and A. Nunes.—p. 346.
*Prognostic Value of Hypoxemia Test. G. Biörck and T. Dalhamn.—p. 366.

Prognostic Value of Hypoxemia Test.—The authors performed 243 hypoxemia tests between 1942 and 1946, and, after an average follow-up period of seven years, studied the incidence of deaths (cardiac or from other causes), in those whose reactions were positive, doubtful and negative. The mortality rate appeared to be much higher in men than in women, but since the average age of the women was lower at the time of the test, a longer observation time will be necessary before valid conclusions can be drawn. The incidence of cardiac deaths was higher, for both men and women, in patients reacting positively than in those reacting negatively, the figures being much higher for men than for women. It was not possible to determine whether doubtful results of the test have any pathologic significance, although the prognosis in these patients seems to be better than in those with definitely positive reactions. Negative or doubtful hypoxemia reactions were followed by cardiac death within six months in five patients and therefore do not exclude advanced myocardial disease. In the different clinical groups the greatest cardiac mortality rate (35 per cent) was noted in the group with hypertension. Clinical judgment as to the degree of coronary involvement in the hypertensive group was a better guide to prognosis than the hypoxemia test, which can only be regarded as a diagnostic aid. There are no grounds for believing that the results of the test, when conflicting with clinical evaluation, would be more valuable than the latter.

Glasgow Medical Journal

32:1-30 (Jan.) 1951

Intrapleural Pressures and Artificial Pneumothorax in Atelectatic Bronchiectasis. A. W. Lees.—p. 1.
*Review of 100 Cases of Ringworm of Scalp. O. A. Finn.—p. 13.
Painful Shoulder Syndrome S. J. T. Robertson.—p. 16.

Ringworm of Scalp.—Each of the 100 cases of ringworm of the scalp reviewed here was diagnosed clinically and confirmed by examination with Wood's light. In 77 cases the fungus was identified by cultures. Microscopy was carried out in the majority of cases and particularly where Wood's light examination showed no fluorescence, e. g., in the presence of Trichophyton sulphureum, of T. quinckeanum and of T. schonleini infection. Microsporum audouini infection accounted for 83 per cent of the 77 cases identified by culture. Sixty patients received x-ray epilation, and defluvium commenced 15 days after the irradiation. Hair growth was present in 63 days. Local applications of salicylanilide ointment and benzoic and salicylic acid (Whitfield's) ointment were used in 30 cases. This method required six months to produce cure as against three months with x-ray epilation. The difference in the time factor between the two treatments, the preponderance of Microsporum infection and the interval of 15 days between the date of x-ray epilation therapy and commencement of defluvium all agree with generally accepted views on the pathogenesis and therapy of tinea capitis.

Journal of Laryngology and Otology, London

65:1-52 (Jan.) 1951

Exfoliative Cytology as Aid in Diagnosis of Tumours of Throat, Nose and Ear. I. Friedmann.—p. 1.
Anatomical and Clinical Evaluation of Head Pain Attributed to Sphenopalatine Ganglion. R. B. Lewy.—p. 10.
Certain Observations on Anatomy, Histo-Pathology and Physiology of External Auditory Meatus. E. G. Collins.—p. 14.
Chronic Exudative Otitis Externa. J. P. Stewart.—p. 24.
External Otitis. R. B. Lumsden.—p. 33.
Bullous Otitis Externa. J. V. Clark.—p. 38.

Klinische Wochenschrift, Heidelberg

29:33-64 (Jan. 15) 1951. **Partial Index**

Number and Significance of Degenerated Ganglion Cells in Sympathectomized Sympathetic Nerve Ganglions. W. Engelbrecht.—p. 41.
*Mechanism of Action of Aureomycin and Chloromycetin in Rickettsial and Typhoid Diseases. F. O. Höring.—p. 49.
Contribution to Effect of Progesterone. G. K. Ober and M. Weber. —p. 53.

Aureomycin and Chloramphenicol in Rickettsial and Typhoid Diseases.—Important conclusions about the mechanisms of chemotherapy and immunity to infectious diseases may be drawn from clinical experiences with aureomycin and chloramphenicol (chloromycetin®) in patients with cyclic infectious diseases. The action of these new antibiotics starts with the bacteriostatic attack on the pathogenic agents. But this attack is only the first link in a chain of events leading to clinical success, which apparently requires the active participation of the host. Many facts, such as the favorable effect of chloramphenicol but not of

aureomycin on typhoid diseases, the frequent defervescence by crisis, the lack of parallelism between the effect obtained and the dose employed have not yet been explained. It is suggested that the blood vessels of the host may participate actively in the mechanism of action of these antibiotics by providing for a higher concentration of the antibiotics at the areas of reaction. Generalization of the infection may be controlled by the bacteriostatic effect of the antibiotics, but this increases the risk of recurrences, because of insufficient immunization. The earlier antibiotic treatment of rickettsial and typhoid diseases is instituted, the longer it must be continued for prevention of recurrences. Healing of tertiary inflammatory local processes, despite the continuation of the infection, may be obtained with the antibiotics, and these processes may be prevented when treatment is instituted early enough. This shows the relation of clinical effect of the treatment to the time treatment is instituted. By the use of these drugs, it may eventually become possible to immunize patients under antibiotic protection so that they pass through the disease without clinical manifestations.

Lancet, London

1:245-298 (Feb. 3) 1951

Results of Surgery in Sciatica and Low Back Pain. B. H. Burns and R. H. Young.—p. 245.
Activity of Human Cervix and Corpus Uteri: Their Response to Drugs in Early Pregnancy. H. O. Schild, R. J. Fitzpatrick and W. C. W. Nixon.—p. 250.
*Streptomycin Treatment of Tuberculous Lesions of Trachea and Bronchi: Report to the Medical Research Council by Streptomycin in Tuberculosis Trials Committee. G. Marshall, J. W. S. Blacklock, C. Cameron, and others.—p. 253.
Conservative Surgery of Duodenal Ulcer. E. MacLellan.—p. 257.
*Arterial Perfusion of Liver in Shock: Experimental Study. E. J. Delorme.—p. 259.
Management of Burns. R. H. Cram.—p. 263.
Value of Leucocyte-Counts in Thiouracil Medication. T. D. S. Holliday.—p. 265.
Rôle of Sulphonamides and Penicillin in Pathogenesis of Systemic Lupus Erythematosus. S. Gold.—p. 268.
Atypical Case of Phenylketonuria. V. A. Cowie.—p. 272.

Streptomycin Treatment of Tuberculous Lesions of Trachea and Bronchi.—Tracheobronchial disease is not a condition separate from pulmonary tuberculosis. A pulmonary focus commonly coexists and is probably the site from which the tracheobronchial tuberculosis originates. Sometimes the tracheobronchial disease becomes the major lesion; it may remain as the only active focus when the lung lesion has healed, or it may, by virtue of its position, decisively influence the course of the disease or the success of treatment. This paper presents the results obtained with streptomycin therapy in 35 patients with tracheobronchitis. Streptomycin was given intramuscularly every six hours for four months. The first 21 patients were given 2 Gm. of streptomycin daily; the last 14, whose treatment was begun after March 1948, were given only 1 Gm. daily. There was only slight evidence that the lower dose was less satisfactory. Bronchoscopy was done before, during and after treatment. In 24 (68 per cent) of the 35 patients the bronchial lesion was found to be greatly improved or healed when the final bronchoscopy was done four or six months after the start of treatment. In 15 of 33 patients who underwent bronchoscopy two months after starting treatment, there was much improvement in the appearance of the bronchial lesions; later relapse was noted in only one of these cases. A satisfactory later response of the bronchial lesion was unusual if some improvement was not found two months after treatment began. Healing of the bronchial lesion was more frequent in those with limited lung disease than in those with tuberculous cavities. Bronchial stenosis was present before treatment in 15 patients, and in seven more cases it developed during treatment. In some patients it may necessitate later surgery. Sputum conversion took place in 24 cases, including two treated by artificial pneumothorax, one by thoracoplasty and one by pneumonectomy. In two cases, in spite of streptomycin treatment, masses of granulation tissue required removal at repeated bronchoscopies.

Arterial Perfusion of Liver in Shock.—Delorme's experiments were undertaken to test the hypothesis that acute liver insufficiency occurs in oligemic states. This hypothesis was based on the known disposition of this organ to anoxic injury. A study was made of the relationship between defective visceral blood flow in shock and liver anoxia and of the effect of supplemental oxygen supplies to the liver on the later events in the shock sequence. Experiments were made on 30 dogs in which arterial, venous and oxygenated venous blood were autoperfused into the liver while the animals were maintained at a fixed level of hypotension. Responses of these dogs were compared to those of controls similarly prepared but in which the perfusion was through a systemic vein. The dogs receiving supplementary oxygen by way of the portal vein invariably showed increased resistance to hypotension. The mean survival time was at least twice that of the control group, and loss of vascular tone developed to a lesser degree and more slowly. Dogs given perfusions of venous blood into the liver showed a response in both survival time and rate of vascular collapse similar to that of controls given arterial blood through a systemic vein. Dogs whose livers were perfused with venous blood artificially reoxygenated showed the greatest resistance of any group. These observations are in agreement with the view that a gradient loss of liver function occurs under anoxic conditions and that peripheral vascular responses are directly or indirectly influenced by this failure.

Lyon Chirurgical

46:129-256 (Feb.-March) 1951. **Partial Index**

Anterolateral Cordotomy: Results, Complications and Causes of Failure. J. C. White.—p. 129.
Pseudoaneurysmatic Temporary Dilatation of Carotid Sinus. R. Leriche and J. de Girardier.—p. 141.
Potassium Metabolism in Surgery. A. Brunschwig.—p. 143.
*Removal of Residual Cavities Persisting After Thoracoplasty: Report of 32 Cases. M. Bérard and L. Grézard.—p. 147.
*One Stage Resection of Bifurcation of Aorta for Thrombosis: Technical Considerations, Possibilities and Limits; Report of Two Recent Cases. J. Sautot.—p. 206.

Residual Cavities After Thoracoplasty.—Residual tuberculous cavities may persist after thoracoplasty in 15 to 20 per cent of the patients subjected to this operation. These patients are threatened by a secondary acute exacerbation of their disease or by contralateral dissemination. Treatment of these residual cavities, therefore, is imperative. Many methods of treatment, such as repeated thoracoplasty, secondary apicolysis, minimum drainage and cavernostomy, have the disadvantage that they do not remove the cause of the residual cavity, particularly bronchostenosis. Consequently, lobectomy or pneumonectomy should be preferred, depending on local conditions. Lobectomy was performed by the authors in three of 32 patients with residual cavities persisting after thoracoplasty, while the remaining 29 were subjected to pneumonectomy. There was one operative death due to syncope, two immediate postoperative deaths due to asphyxia and to pulmonary edema respectively and three secondary postoperative deaths due to empyema, bronchial fistula and effusion. Twenty-six patients had an uneventful postoperative course. Dissemination or contralateral spread of the disease did not occur. Radical treatment therefore seems justified, but caution may be advisable in patients aged over 40.

Resection of Bifurcation of Aorta.—Resection of the bifurcation of the aorta was performed for chronic obliterating thrombosis of the bifurcation in two men aged 52 and 47. Both patients had intense pain in the lower extremities, and there was functional sexual impotence. The condition had become rapidly worse during the last year, but the patients had been ill for five and seven years respectively. Aortography in the first case revealed obliteration of the bifurcation of the aorta, but there was excellent bilateral collateral circulation via the last lumbar arteries and the ascending branches of the iliolumbar arteries. Laparotomy was done, and the obstruction of the central portions of the common iliac and internal iliac arteries was relieved by bilateral arteriotomy 2 to 3 cm. long on the anterior aspect of the common iliac arteries. This was followed by retrograde dissection of the two common iliac arteries and of the aorta after the obstructed middle sacral artery was resected. Section of the aorta was then performed in a strongly pulsating but obliterated zone. Recovery was uneventful, and three months after the intervention the patient was able to walk 400 meters (about 1,200 feet) without stopping and his potency was re-

stored. Aortography in the second patient revealed obliteration of the aorta just below the renal arteries. There was no collateral circulation. The common iliac arteries were mobilized and resected, but the external iliac arteries were totally obliterated, and attempts to remove the clots failed. Sectioning of the aorta was carried out directly below the origin of the inferior mesenteric artery, in a thrombosed zone. Microscopic examination of the removed specimen suggested that the patient had a progressive ascending thrombosis of the aorta. The morning after the intervention the patient had no pain and both the legs were warm. On the fifth postoperative day severe pain occurred suddenly in the right leg, there was dyspnea and anuria, purple plaques appeared on both legs and death occurred within 12 hours. It appears that pronounced disturbances due to thrombotic obliteration of the bifurcation of the aorta may be relieved by arteriectomy alone. The transperitoneal approach seems to be preferable under present conditions of anesthesia. Removal of the distal segments of the thrombus may reduce the risk of embolism or of extensive thrombosis caused by ligation in the obliterated zone. The operation is definitely contraindicated in those cases in which aortography does not reveal satisfactory collateral circulation. Bilateral excision of the first and second lumbar ganglions or their infiltration is the only possible treatment in these latter cases.

Medical Journal of Australia, Sydney

2:949-976 (Dec. 30) 1950

Farewell to Academe. J. Medley.—p. 949.
Urological Problems in General Practice. J. S. Peters.—p. 954.
*Treatment of Gastro-Enteritis in Infants with "Chloromycetin." D. C. Fison and E. Singer.—p. 957.
Sarcoidosis: Diagnosis and Management. B. Robinson.—p. 959.
*Syndrome of Cyclic Attacks of Allergy in Childhood. H. G. Breidahl. —p. 961.

Chloramphenicol for Gastroenteritis in Infants.—Gastroenteritis in infants and children has been prevalent in Brisbane since the war years, but treatment with penicillin, sulfonamides and streptomycin has not been entirely satisfactory. When, in 1949, a supply of chloramphenicol (chloromycetin*) became available, the authors gave this drug a clinical trial. With the limited amounts of chloramphenicol on hand they have been able to cure all patients with severe gastroenteritis. From July to September 1949, prior to the use of chloramphenicol, there were 11 deaths from this disease. Since Sept. 10, 1949, when chloramphenicol was first used, there have been no deaths from gastroenteritis—this despite the fact that the epidemic had steadily grown as summer advanced, the numbers of cases in the hospital rising from an average of 15 to an average of 40, and the severity remaining equal. Chloramphenicol is given with the baby's food every three or four hours, in amounts of approximately 100 mg. per kilogram of body weight per day for 10 to 12 days in severe cases. In milder cases, smaller doses and administration for a period of four to six days may prove effective.

Cyclic Attacks of Allergy in Childhood.—Breidahl describes symptoms that frequently accompany asthma in childhood. A prodromal period of irritability lasting about 24 hours is followed by coryza for a similar period. A dry cough gradually makes its appearance and merges into a period of distressed breathing. Pyrexia may be present from the onset of the coryza or may appear later. Anorexia is almost always present during the actual wheezing but may also extend over a much longer period both before and after the wheeze. Abdominal pain and vomiting are observed, the latter usually occurring at the height of wheezing, which lasts one to four days and is followed by a loose cough lasting another few days. The interval after the subsidence of symptoms is usually between two and four weeks; at the end of this period the irritability reappears and the whole cycle of events follows once more. The author suggests that this is a definite syndrome of cyclic attacks of allergy in childhood. He calls attention to the fact that psychological disturbances and febrile coryzal atacks are often quoted as causes of recurrent asthma. However, since these manifestations become much less pronounced when the asthma is controlled by the removal of allergens, they are probably accompaniments and not causes. A common variation of the syndrome is that the attack reaches its climax at the febrile coryzal stage without the development of asthma. A less common variation takes the form of severe abdominal pain and vomiting. Not all asthma in childhood follows the cyclic pattern. Although many of the aforementioned symptoms are commonly met with in children, their allergic origin may not be recognized. The diagnosis of asthma in children and infants is frequently missed. When a history of repeated attacks of coryza, fever, etc., is obtained, it is not advisable to submit an allergic child to intermittent courses of sulfonamides. The possible presence of a mild degree of bronchiectasis should not be overlooked in a child with cyclic attacks of asthma.

Presse Médicale, Paris

59:121-140 (Feb. 3) 1951. **Partial Index**

Sensitivity of Hamster to BCG. P. Hauduroy and W. Rosset.—p. 121.
Resuscitation After Anoxia. L. Binet and M. V. Strumza.—p. 121.
*Treatment of Auditory Vertigo by Decompressive Trephining of the Subarachnoidal Cisterns. J. Piquet and G. Decroix.—p. 124.

Surgical Treatment of Auditory Vertigo.—Patients with labyrinthine vertigo usually show alteration of the inner ear, characterized by edematous fluid in the membranous vestibule and in the cochlea, alteration in the endolymphatic duct, which is sometimes widened and sometimes narrowed, and very often an atrophic process of degeneration in the spiral ganglion and organ of Corti. Typical labyrinthine vertigo may also occasionally orginate in nervous lesions or changes in the centers maintaining the equilibrium. The origin of labyrinthine edema is still uncertain, but it is known that there is a close functional connection between the subarachnoidal spaces and the inner ear. The labyrinthine pressure definitely depends on the cerebrospinal fluid pressure. Circulation and absorption of the endolymph are still controversial subjects, but whatever the accepted hypothesis, decompression of the subarachnoid space will facilitate the removal of the endolymph. The authors performed trepanation only when conservative treatment had failed (about 10 per cent of the cases), on patients in a chronic state of vertigo. Four of the five patients operated on had complete recovery, but in the fifth there was rapid recurrence. Removal of a large portion of bone substance is necessary for an effective intervention. There is no technical difficulty, but hemostasis must be very carefully done, since there is profuse bleeding. This treatment should be reserved for patients with vertigo caused by labyrinthine edema, but clinical diagnosis is sometimes mistaken, as it probably was in the author's patient who had recurrent symptoms. This intervention is not mutilating, does not interfere with hearing and usually attenuates the tinnitus.

Revista Médica Dominicana, Ciudad Trujillo

5:265-348 (Oct.-Nov.-Dec.) 1950. **Partial Index**

*Sickle Cell Anemia and Pulmonary Tuberculosis. J. M. Herrera Cabral. —p. 336.

Sickle Cell Anemia and Pulmonary Tuberculosis.—Routine investigation for sickle cells in a group of 138 adolescents (most of them Negroes and mulattoes) showed the presence of these cells in eight. Two of the patients had sickle cell anemia. Six, including those with sickle cell anemia, had acute forms of pulmonary tuberculosis. In all cases the treatment of tuberculosis, including artificial pneumothorax in four cases, phrenicectomy and pneumoperitoneum in one case and the administration of antibiotics and paaraminosalicylic acid in all cases, failed. The author concludes that the presence of sickle cells in the blood and, especially, sickle cell anemia predisposes children and adolescents to pulmonary tuberculosis. Sickle cell anemia aggravates pulmonary tuberculosis. The course of the disease is more acute in Negroes and mulattoes than it is in white persons. It has been believed that the poor economic and social conditions of Negroes and mulattoes are the cause of the high incidence of acute forms of pulmonary tuberculosis among them. However, according to the author, the main factors are the frequent presence of sickle cells in the blood and the high incidence of sickle cell anemia among these persons.

BOOK REVIEWS

Terminal Care for Cancer Patients: A Survey of the Facilities and Services Available and Needed for the Terminal Care of Cancer Patients in the Chicago Area. Paper. Pp. 156. Central Service for Chronically Ill of Institute of Medicine of Chicago, 343 S. Dearborn St., Chicago 4, 1950.

This is an unusually excellent study of a much neglected aspect of the cancer problem. From a study of a large number of cancer deaths in Chicago, Miss Nicholson and her staff present an analysis of the minimum need of terminal cancer patients and of present inadequacies in meeting these needs. Most of the conclusions arrived at, with the exception of those pertaining particularly to the Chicago area, are probably generally applicable. About 80 per cent of terminal cancer patients require care in a hospital or related institution for some period preceding death. The number of institutional beds required for this purpose is in the ratio of one bed to nine annual cancer deaths. These beds should not be in specialized institutions but in general hospitals and nursing homes. Patients remaining at home often need the help of visiting nurses, dietitians and social workers. In a study of 336 patients who died at home, it was found that 30 per cent needed hospitalization but could not afford it and an additional 27 per cent remained at home because hospital or other institutional beds were not available. It is estimated that more than half of all terminal cancer patients are unable to pay all or a part of the cost of the care they require.

This book should be read and studied, not only by those interested in cancer, but by anyone concerned with the growing problems of the care of the chronically ill, of which cancer patients comprise a fairly representative sample. This study was expertly planned and carried out and is reported in a clearcut and well organized style. It furnishes a good example of the methodology of such studies. The Central Service for the Chronically Ill of the Institute of Medicine of Chicago and the Illinois division of the American Cancer Society, which financed the study, have made a significant contribution by this report to the better understanding of an important phase of cancer control.

A Synopsis of Surgical Anatomy. By Alexander Lee McGregor, M.Ch., F.R.C.S., Senior Surgeon, Johannesburg General Hospital, Johannesburg. With foreword by Sir Harold J. Stiles, K.B.E., F.R.C.S. Seventh edition. Cloth. $6.50. Pp. 778, with 746 illustrations by Dr. E. A. Thomas. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

This manual of surgical anatomy comes from the hand of surgeon McGregor, Lecturer in Surgery at the University of Witwatersrand, South Africa. In the foreword Sir Harold Stiles affirms that a book on practical anatomy must be written by a surgeon, after an apprenticeship in the dissecting room and with a foundation of experience gained as a postgraduate lecturer. These attributes McGregor has, and the manual reflects them, bringing to the student, surgeon, or teacher of surgery a well-organized compact volume almost small enough to slip into one's side pocket.

The primary object of the book is to present anatomical and often correlated clinical facts of practical value to the senior student and practitioner. While it covers the whole human body, it is not intended to be an exhaustive anatomical treatise but is expected to act as a quick, readily accessible manual and as a supplement to larger classical volumes on anatomy. It is divided into two parts: anatomy of the normal and anatomy of the abnormal. It contains many practical adjuncts to modern progressive surgery, including the anatomical bases of many clinical tests. The sympathetic nervous system, the intervertebral discs and its problems, the ligamentous structures, joints, the teeth, and the various bursae and their difficulties are discussed in short informative paragraphs, the contents as a whole being presented in terse essays each complete in itself. The illustrations are line drawings befitting the simplicity and teaching qualities of the book. Some references are spread throughout to be picked up on the page perused.

The whole book becomes a storehouse of easily selected anatomical information, especially since the index occupies 40 pages. It is very different from books used in medical colleges of the United States and recalls Treves' "Applied Surgical Anatomy," formerly a very popular small book read profitably by senior medical students. By contrast McGregor's book contains much more knowledge and a far wider spread of material for clinical application and is as readable as Treves.' It would be difficult for one to recall a similar book in the United States except the bare outline of surgery used 50 years ago, Senn's "Syllabus of Lectures on the Practice of Surgery."

This edition contains new chapters on thoracic surgery, surgery of the blood vessels, and the cervicobrachial syndrome, with improvement of the section on the anus. The senior medical student, the practitioner, and the surgical resident could find no better help than this book for easy anatomical information in their daily surgical problems.

The Chewing Approach in Speech and Voice Therapy. Edited by Deso A. Weiss, M.D., and Helen H. Beebe. Cloth. 12.50 Swiss francs. Pp. 118, with 1 illustration. S. Karger, Holbeinstrasse 22, Basel; 215 Fourth Ave., New York 3, [n.d.].

This remarkable book deserves perusal not only by speech and voice therapists but also by the general public, including many physicians, who may not suspect how intensively the field of phoniatry and logopedics has been cultivated. There are nine smoothly written chapters by different authors discussing the theory and technique of their work. An extreme example of the subjects included is the teaching of reading and writing to persons who have never heard and never will hear their own voices because of congenital deafness.

The chewing method, for which much credit is due Emil Froeschels, is described on pages 28 to 30, and the reader who fears that the book will prove to be an uncritical exposition of the ideas of some cult is, for a time, relieved of his misgivings. Unfortunately on page 114 caution is thrown to the winds, and an enthusiastic contributor declares that "the chewing method is the answer to all requirements of education and reeducation of the singing voice." In the absence of an index, the reader wearies of searching for whatever material there might be relating to esophageal speech after laryngectomy. However, the Swiss publishers deserve a compliment for having printed a book in English, with numerous German and French references, apparently without an error.

Recent Advances in Chemotherapy. Volume II (Malaria). By G. M. Findlay, C.B.E., Sc.D., M.D. Third edition. Cloth. $7.50. Pp. 597. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1951.

This excellent volume, second in a series on recent advances in chemotherapy, presents a complete and comprehensive discussion of the chemotherapy of malaria. It is written in a style that should make it equally valuable to the chemist, who has only slight knowledge of medicine, and to the physician, whose background in organic chemistry may be superficial. The author has happily combined lucid style and simple presentation to evaluate and synthesize the vast amount of research that has been done in this field during World War II. Though experts or specialists may argue minor points and conclusions, this volume represents an outstanding contribution to the pharmacology and therapy of malaria. It not only discusses the treatment of human malarias but also covers sufficiently the relationship of chemical constitution to therapeutic effect in avian and other mammalian malarias as well. The relationship of chemotherapy to the biology and natural history of various malarias is adequately treated. Enough of the historical background for more recent work is fortunately included.

This edition is a welcome, scholarly monograph on chemotherapy, which can be recommended to the student and expert alike.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Lehrbuch der inneren Medizin. Band II. Von M. Broglie, et al. Herausgegeben von Helmut Dennig. Cloth. 39 marks. Pp. 1117, with 326 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart-O; Agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

In the foreword to this volume the editor states that the purpose of the work is to bring practitioners and students up-to-date on the newer knowledge of medicine which has accumulated so rapidly in recent years. Indeed new material has increased so rapidly that the editor has included a chapter in this volume discussing progress made since the publication of the first.

The contributors are F. Schellong (heart and vascular system), N. Henning (digestive system), H. Schulten (urinary system), K. Hansen (allergy), K. Hansen and W. Gronemeyer (toxicology) and the editor, who contributes a chapter on the newer aspects of diagnosis and therapy. As in the first volume, there is a great deal of informative discussion on the normal and pathological physiology of the systems covered and the theoretical bases of allergy and toxicology. There is also considerable detail regarding laboratory, roentgenographic and other technical tests and even physical diagnosis. While by no means disadvantageous, this plan does add bulk to the book as contrasted with the usual American manual. However, it has the advantage of assembling information which, under our current custom, may be scattered in several books.

The book, even though it comprises about 100 pages more than volume one, is not particularly cumbersome. It is sturdily bound in cloth and printed on a good quality of paper in clear type, though in some less important paragraphs the type is small. The illustrations, which include graphs, reproductions of roentgenograms, diagrams, and photographs of patients, are well chosen and clearly reproduced. The section on the nervous system is particularly rich in illustrative material. There is no obvious unevenness in the quality of the contributions by the different authors which are written in clear and simple German. There are no bibliographies, but the index is voluminous.

There are some features of special value such as the arrangement of poisons both under their occupational incidence and also alphabetically, the latter list covering both symptoms and treatment. Occasional omissions of newer poisons, beryllium and marihuana, for example, are noted. As a whole the work can be commended as a clear, informative and accurate survey of current knowledge in the field of internal medicine.

The Social and Biological Challenge of Our Aging Population. Proceedings of Eastern States Health Education Conference, March 31-April 1, 1949. [Under auspices of New York Academy of Medicine.] Cloth. $2.75. Pp. 183, with illustrations. Columbia University Press, 2960 Broadway, New York 27, 1950.

In this volume are 11 papers on the problem of aging. V. Korenchevsky reviews organized research projects in gerontology in this country and abroad and pleads for their more extensive support. Jean Oliver summarizes knowledge regarding the anatomical and physiological changes which accompany old age and clearly indicates the fundamental difficulty of distinguishing pathological effects from those caused solely by "normal aging." Under the title "Controllable Factors in the Process of Aging," F. J. Tisdall presents data suggesting that some of the structural changes considered due to aging may also be caused by nutritional deficiencies. He states: "There is almost a direct correlation between the life expectancy and the per capita consumption of milk, leafy vegetables and fruit" (and one might add, use of automobiles). David Seegal in his paper on longevity and the control of chronic disease discusses and lists chronic diseases now partly or entirely controllable by appropriate therapy or preventive measures. In "Psychological Factors That Have a Bearing in the Aging Process" Edward B. Allen describes the psychological features considered characteristic of the old: impressionable; seeking authority; self preservation dominant over reproductive instincts; and he provides excellent exhortative advice to the prospective oldster. "The Retirement Myth" by Julius Hochman is a convincing brief for the thesis that compulsory retirement at a fixed age is an evil and should be discouraged. The two papers on the population statistics of aging by Clyde V. Kiser and Vasilius G. Valaoras indicate among other interesting points that the chief factor thus far producing a higher proportion of older people has been declining fertility. Declining mortality, being greatest at younger ages, has actually worked against aging. The concluding two papers on sociological aspects are among the most interesting and provocative in the book. Kingsley Davis and J. W. Combs Jr. provide data for their chief conclusion that old age is a problem today because of our family and economic organizations, competitiveness and increasing geographic and social instability. Eduard C. Lindeman offers interesting suggestions for greater utilization of the skills of older persons, particularly in the professions. This volume, although not an exhaustive survey of the biological and social problems of old age, is a useful contribution to the subject.

Honig und Trockenmilch: Biochemie und therapeutische Bedeutung. Von Prof. Dr. Walter Spöttel. Half-cloth. 7.60 marks. Pp. 323. Johann Ambrosius Barth, Salomonstrasse 18 B, Leipzig C 1, 1950.

This work reviews the literature on the biochemical, physiologic and therapeutic properties of honey and its constituents and of dried milk, especially as compared with fresh milk. It presents the results of research on the usefulness in illness and health of a combination of honey, dried milk and dextrose marketed as ho-mi by Nook-Halle. While the main purpose of the work may be to advertise this product, only 33 pages are given to it. The quality of the paper reflects paper shortages in the Russian zone of Germany, but this appears to be the only thing poor about the monograph. The 20 page bibliography should be useful.

Leitfaden für den geburtshilflichen Operationskurs. Von Dr. med. et Dr.art.obst.h.c. Albert Döderlein. Twentieth edition, edited by Professor Dr.med. Gustav Döderlein, Direktor der Universitäts-Frauenklinik in Jena. Boards. 7.50 marks; $1.80. Pp. 272, with 184 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; Agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

The numerous editions of this small book are a great tribute to the author's father, Albert Döderlein. Very few changes have been made from the eighteenth and nineteenth editions. The section on destructive operations occupies 30 pages, but the author defends himself in the introduction by stating that this is necessary because many deliveries are still performed in homes by general practitioners and that dead infants are not uncommon there. As in previous editions, there are many drawings which illustrate the technic of the various obstetric operations. These are clear and instructive. In the United States the Braxton-Hicks version is being discarded. In the discussion of breech extraction, the author describes and illustrates the use of a rubber tube and also a hook for the purpose of extracting the breech. Both of these maneuvers are dangerous and, therefore, should not be described or illustrated. One minor criticism is the fact that in all the drawings the hands are shown without gloves. The fact that this book has gone through so many editions is sufficient proof that the book is popular in German-speaking countries.

La stérilité involontaire: Evaluation des méthodes de diagnostic et de traitement. Par Raoul Palmer, chef des Travaux de gynécologie à la Faculté de Paris. Avec la collaboration de Mme. Élisabeth Palmer. Préface de M. le professeur P. Mocquot. Paper. 1600 francs. Pp. 493, with 88 illustrations. Masson & C^ie^, 120 Boulevard Saint-Germain, Paris 6^e^, 1950.

In this book the author takes up every aspect of involuntary sterility. Because he is interested in celioscopy, he devotes 30 pages to this subject. He insists that celioscopy should neither replace tubal insufflation or hysterosalpingography, but sometimes it should precede these tests to verify their probable innocuousness in cases where there may be adnexal masses. Therapeutically, celioscopy may be used to cut adhesions. In the author's clinic at the Hospital Broca among 214 biopsies, tuberculosis was found to be probably present in 3 per cent. The author maintains that there is no certain test of ovulation except discovery at operation of an ovum or the presence of a pregnancy. However, he believes that ovulation normally occurs on the fifteenth day before the onset of the following menstrual period.

Palmer maintains that vaginal hyperacidity is a frequent cause of sterility, and he prescribes a douche to overcome it. Not everyone believes that vaginal acidity is a cause of sterility. Likewise, some may not have any faith in the use of intubation to overcome hyperanteflexion of the uterus.

The author presents results of his 61 plastic operations on the tubes and also the results of the 60 operations performed by Douay. The incidence of success in both series was 11 per cent, a very poor showing indeed. The best results were obtained in the cases where salpingolysis was performed, the next best were tubouterine implantations and the poorest results were observed in the salpingostomies.

In the discussion on artificial insemination, Palmer mentions that he used artificial insemination employing the husband's semen in 20 cases with four successes. On the other hand, there are serious theological objections to the use of donor semen. He has used donor semen for insemination in only three cases and encountered success in all of them. At the end of the book the author cites the statistics for the Hospital Broca and also his personal experiences for the year 1948. There is also a well selected list of references. This book contains nearly all the essential information about involuntary sterility. The author has been interested in the subject for many years and has made numerous important contributions. Therefore, the statements made in this book are definitely authoritative.

Elsevier's Encyclopædia of Organic Chemistry. Founded by E. Josephy and F. Radt. Editor in Chief: Dr. F. Radt. Series III: Carboisocyclic Condensed Compounds. Volume 12 B: Naphthalene. A. Compounds Containing One Naphthalene Nucleus. Pages 2189-2716: Oxo-Compounds (Except Quinones). Cloth. $50; $43.75 to subscribers to series III; $37.50 to subscribers to complete work. Pp. 2189-2716. Elsevier Publishing Co., 250 5th Ave., New York 3; 118 Spuistraat, Amsterdam, Netherlands; Cleaver-Hume Press Ltd., 42a S. Audley St., London, W.1, 1950.

This is the fourth volume concerning naphthalene compounds and the seventh of the series to appear as a part of this encyclopedia of organic chemistry. A review in THE JOURNAL (**134:**1513 [Aug. 23] 1947) explains the scope and value of these volumes. The first three books of volume 12 B cover naphthalene and its halogen, nitrogen and hydroxy derivatives. This volume on ketone and aldehyde derivatives of naphthalene is based on the literature through 1944 and information on structure of compounds through 1949. It does not cover the quinones of naphthalene. Included are the physical properties, methods of formation, reaction, physiological properties and derivatives of such compounds as naphthaldehyde, acyl naphthalenes, acyl naphthols, tetralones, octalones, decalones and their halogen and amino and nitro derivatives.

Introduction to Surgery. By Virginia Kneeland Frantz, M.D., Associate Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York, and Harold Dortic Harvey, M.D., Assistant Professor of Clinical Surgery, College of Physicians and Surgeons, Columbia University, New York. Second edition. Cloth. $2.75. Pp. 233, with 12 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1951.

This small work deals with the elementary yet important essentials of surgery. The authors stress correctly the fact that surgery cannot be learned from books or lectures alone, but that the student must be encouraged to observe, record and interpret. Surgery is depicted as a branch of medicine rather than a technique; this is surely to be condoned. Section 3 on the repair of accessory skin structures is especially well done. Under the subject of calculi, it might have been well to include bronchial stones. In the section on specific infections, more space should have been devoted to syphilis, since surgical intervention for syphilitic lesions, although not common, is not rare. The section on drainage is nicely presented. The book is brought up-to-date in the last section dealing with anesthesia, experimental surgery and the general care of the patient. The illustrations are not only mediocre in quality, but they also did not turn out well on the poor paper used. The book as a whole is written nicely and should make a good collateral volume for surgeons and for the study of elementary surgery.

Health and Disease in the Tropics. By Charles Wilcocks, M.D., F.R.C.P., D.T.M.&H., Director, Bureau of Hygiene and Tropical Diseases, London. Cloth. $3.25. Pp. 200, with 33 illustrations by John Hull Grundy and author. Oxford University Press, 114 5th Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1950.

This book is designed for use as a manual of tropical public health and disease for the guidance of nonmedical administrators in the British Colonial Service and for other supervisory personnel concerned with the health aspects of tropical living. The author deals chiefly with disease prevention and treatment, but also covered are general measures for the control of water, food, housing and clothing for the preservation of health in the tropics. The subject matter is up-to-date and presented in a nonprofessional fashion but at a sufficiently technical level to appeal to persons with executive training and comprehension. It is also suited to tropical workers in allied fields of science with a partial knowledge of medicine.

The discussions of the various tropical diseases properly emphasize the preventive aspects of management and provide sufficient details of treatment to enable one who is not a physician to achieve some measure of control or relief until professional care can be obtained. The author properly warns of pitfalls in self diagnosis and treatment for conditions in which expert care is essential from the onset of illness. The book also includes some sound advice pertaining to the social problems of administrators and their significance in the promotion of the general health and welfare of persons who reside in the tropics.

This book can be recommended highly to nonmedically trained persons contemplating an extended period of residence in tropical climates.

Encyclopedia of Chemical Technology. Volume V: Di- to Explosions. Volume VI: Explosives to Furfural. Edited by Raymond E. Kirk, Head, Department of Chemistry, Polytechnic Institute of Brooklyn, and Donald F. Othmer, Head, Department of Chemical Engineering, Polytechnic Institute of Brooklyn, Brooklyn, N. Y. Assistant Editors: Janet D. Scott and Anthony Standen. Cloth. $20, each. Pp. 992; 1008, with illustrations. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1950; 1951.

Reviews of the early volumes of this set of encyclopedias have stressed the contents that are of interest to the physician. There is no intention to imply, however, that the main body of these volumes would not be of interest also, for there is a wealth of other information concerning related sciences and technologies. The purpose is to review for the physician those portions of primary interest to the medical profession as a whole.

Volume 5 contains articles of medical interest on diuretics and antidiuretic agents, industrial hygiene aspects of dust, emetics and expectorants, enzymes and enzymology and epinephrine. Articles on individual chemicals such as ether, ethylene and ethanolamines include statements concerning health hazards and toxicities encountered with these agents. Other topics of interest include dry cleaning, dyes, eggs, electronics, emollients, demulcents and emulsions.

Volume 6 includes little material on medicine, per se, but there is related information on such topics as folic acid, food, food chemicals, fish-liver oils, fats and fatty acids. In addition, subject headings include explosives, extraction, fermentation, fertilizers, fish and shell fish, fluorine compounds and fuels.

For general knowledge on aspects of principles and economics of technology, this is an admirable set of references.

Diseases of the Tropics. By George Cheever Shattuck, M.D., Consultant for Tropical Diseases, Boston City Hospital, Boston. Cloth. $10. Pp. 803, with 131 illustrations. Appleton-Century-Crofts Company, Inc., 35 W. 32nd St., New York 1, 1951.

Most textbooks dealing with the subject of tropical medicine are unduly long and attempt to present, in addition to material of importance in the tropics, a brief review of cosmopolitan medicine. This book is gratifyingly concise and up-to-date at no expense to thorough coverage of the major diseases of most importance in the tropics. The contents are arranged in 12 parts and deal with the more important infections caused by bacteria, viruses, fungi, helminths and protozoa. In addition, disorders of nutrition and miscellaneous diseases are briefly discussed. The final two sections deal with tropical climates and health, noxious animals, plants and arthropods. The history and epidemiology of the various infectious diseases presented are covered concisely but adequately. The clinical aspects lean in the direction of emphasizing those features which are amenable to clinical or laboratory diagnosis. The therapy prescribed is up-to-date, and in most instances exact schedules of drug administration are given, as well as relevant features related to pharmacology and toxicity of the drugs employed. The type, format and paper make a favorable impression. It is believed that this text is extremely useful for general practitioners in the tropics.

A Syllabus of Laboratory Examinations in Clinical Diagnosis: Critical Evaluation of Laboratory Procedures in the Study of the Patient. Edited by Thomas Hale Ham, B.S., M.D., Assistant Professor of Medicine, Harvard Medical School, Boston. Paper. $5. Pp. 496. Harvard University Press, Cambridge 38, Mass., 1950.

This work is designed "as a teaching aid in the diagnosis and management of the patient, to form a link between preclinical and clinical medicine." The presentation is well adapted to its stated purpose. Emphasis is placed on sources and clinical significance of technological laboratory errors, a normally neglected but practically significant factor in diagnosis. In general, each presentation is divided between pathology and technology.

The book is divided into seven parts, covering the introduction, blood, urinary system, gastrointestinal tract, infectious diseases, metabolic diseases and extravascular fluids. Each section (except the introduction) starts with an over-all analysis of the significance of the applicable test data considered as a whole. This is followed by discussions of the significance and technique of each test. The bibliography is excellent, with many references to publications as late as 1949.

This book can be recommended as an intermediate text for use by anyone interested in clinical diagnosis, its meaning, limitations and possibilities.

Clinical Studies in Psychoanalysis. By Sandor Lorand, M.D., Professor of Clinical Psychiatry (Psychoanalytic Medicine), State University Medical Center at New York College of Medicine, New York. Cloth. $4. Pp. 272. International Universities Press, Inc., 227 W. 13th St., New York 11, 1950.

Eighteen papers are presented, each of which concerns itself with a different clinical syndrome, plus documenting case material, interpreted through dynamic psychoanalytic principles. All cases cited are stated to have been treated by long-term psychoanalytic therapy. They represent on the average a follow-up period of 10 to 20 years after termination of therapy. Particularly interesting chapters are those on the psychology of the inventive or artistic mind and on "success" neuroses. The author is editor of the "Year Book of Psychoanalysis." Presentation of cases and comments concerning them follow closely the fundamental Freudian concepts of psychoanalysis.

Tell Me, Doctor: The Modern Woman's Medical Guide. By Henry Barnard Safford, M.D. Cloth. $2.95. Pp. 256. Renbayle House, Publishers, 1165 Broadway, New York 1, 1951.

In this book the author covers 24 subjects including female anatomy, female physiology, menstruation, pregnancy, sterility, tumors, change of life, labor pain control, operative deliveries, twins and other subjects. At the end of the book is a glossary of terms. The book is well written in a conversational style. The patient asks the physician questions, and he explains in simple language. One may disagree with the author on the value of external pelvic measurements. Also in the taking of morning temperatures in cases of sterility, the oral route is just as effective as the rectal route. The chapter on labor pain control is particularly good, especially the one paragraph devoted to spinal anesthesia. The book can be well recommended because it serves as a most satisfactory medical guide for women.

Chemical Embryology. By Jean Brachet, Professor at University of Brussels, Belgium. Translated from French by Lester G. Barth, Professor of Zoology, Columbia University, New York. Cloth. $8. Pp. 533, with 124 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3; Interscience Publishers, Ltd., 2a Southampton Row, London, W.C.1, 1950.

The fascinating metamorphosis of the fertilized egg into the embryo occurs in a closed system in which protoplasm is synthesized from stored reserves in the egg. In this manufacture, water, oxygen and minerals are absorbed from the environment. Embryologically, the unfertilized egg and the earlier embryonic stages are relatively simple and, therefore, lend themselves to study by chemical and physical methods. These studies have shed light on the reasons for localization of germ plasm and the fundamental reasons for organization, localization and differentiation of new systems.

The present text maintains the classical motif of embryology, considering first the gametes, then fertilization, classification, cleavage, growth and differentiation, chiefly of invertebrates. The voluminous bibliography and excellent translation combine to make this textbook valuable for students and investigators in biology.

Illustrations of Bandaging and First-Aid. Conpiled by Lois Oakes, S.R.N., D.N. Fourth editon. Cloth. $2. Pp. 308, with 370 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1950.

The first edition of this book was published in 1940 at a time when there was urgent need in Great Britain to mobilize all resources for preparedness. In the preface, Miss Oakes indicates that her aim was to enable the student, by means of pictures, to master quickly the science and art of bandaging and of first aid in fractures and hemorrhages. The section on war wounds has been deleted, and a new section dealing with elastoplast and its method of application has been added.

In the main, the procedures outlined are limited to emergency first aid care. However, at certain points, and particularly in the description of the use of elastoplast, there is a departure from this plan in that the author has developed the therapeutic applications of certain procedures. The sections dealing with shock, hemorrhage and fractures contain much technical medical terminology. Although it is not stated, it is assumed that this manual is intended for the guidance of nurses and not to be used as a textbook by nonprofessional first aiders.

Well selected approved methods of triangular and roller bandaging are demonstrated, including all the commonly involved sites of the body. Numerous illustrative photographs demonstrating the technics on living subjects are nicely correlated with the concisely stated procedures. Adequate space is afforded throughout the book for note taking.

The index is so arranged that it affords ready reference to specific items covered in the contents. This book should be of value to all professional health personnel who are responsible for emergency medical care and of particular interest to those who are now developing the medical phases of the civilian defense program.

Pharmacology and Therapeutics: A Textbook for Students and Practitioners of Medicine. By Arthur Grollman, Ph.D., M.D., F.A.C.P., Professor of Pharmacology, Southwestern Medical School of University of Texas, Dallas. Cloth. $10. Pp. 828, with 104 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

In 1947, Dr. Grollman and Dr. Slaughter prepared the thirteenth edition of Cushny's "Pharmacology and Therapeutics." Much of the text and many of the illustrations of that book have been retained in the present volume. However, the contents have been completely rearranged and are presented in a much more logical sequence. The text has been considerably abridged: although most of the advances of the intervening years have been added, this volume contains only 828 pages while the thirteenth edition of Cushny contained 868. Each chapter begins with an orienting introduction and concludes with a list of United States Pharmacopoeia and British Pharmacopoeia preparations and a short bibliography. An epitome of prescription writing and a classification of drugs according to their therapeutic uses are included as appendices. While this book is too brief and insufficiently documented for the advanced student, it should be of value to the medical student and the physician who desires an up-to-date résumé of pharmacology.

Grundlagen der Gynäkologie: Funktionelle Anatomie, Regulationsvorrichtungen, Untersuchungstechnik für Studenten, Ärzte und Fachärzte. Von Prof. Dr. med. Heinrich Martius, Direktor der Univ.-Frauenklinik Göttingen. Gemeinsam mit Käthe Droysen als Zeichnerin. Cloth. 23.40 marks; $5.55. Pp. 144, with 113 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; Agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

This book is divided into three parts. The first deals with the structure and function of the female sex organs and surrounding structures. The second concerns the regulatory and protective apparatus of the female sexual functions, and the third portion deals with special methods of gynecological examinations. Of course, the third part is the most practical. The book is extremely well written, it contains practical advice and it is beautifully illustrated. At the end of the book is a bibliography which should prove most useful. Undoubtedly this small book will become as popular as the author's other excellent books dealing with obstetrics and gynecology.

QUERIES AND MINOR NOTES

FOUR OPERATIONS FOR GALLSTONES

TO THE EDITOR:—*A patient has been operated on four times for stones in the common duct within the last two years. Can you suggest a diet, or other means, of preventing the formation of gallstones?*

Herman F. Ahrens, M.D., New York.

ANSWER.—There is no diet or medical means that can be relied on to prevent the formation of new gallstones. Almost always the explanation of a case such as described is that not all the stones have been removed from the duct system at the previous operations. It is generally supposed that several years are required for the formation of gallstones of any considerable size. Probably in this case there were stones in either the right or left hepatic ducts which were overlooked and not removed at the previous operations. One wonders what care was taken to determine whether all the stones were removed. Cholangiography on the operating table is sometimes of value in the determination of this point.

POLIOMYELITIS

TO THE EDITOR:—*The question of intravenous administration of fluids and the correct amount of these fluids in cases of acute spinal and bulbar poliomyelitis always arises. What is the opinion of experts regarding the possibility of aggravating cerebral edema in this way? What would be considered a minimum amount of intravenously administered fluid therapy? In cases of bulbar poliomyelitis, is there any evidence that milk or egg products given through the tubing produces more mucus? Is tube feeding generally considered advisable, and if so, when? What are the current opinions regarding the use of atropine in cases of bulbar poliomyelitis?*

William S. Keenan, M.D., Rockford, Ill.

ANSWER.—In the acute stage of bulbar and respiratory poliomyelitis, intravenously administered fluid, particularly saline, may aggravate cerebral edema and precipitate circulatory complications, including pulmonary edema. Arterial hypertension is not uncommon in such patients; production of sudden changes in blood volume is therefore risky. The intravenous injection of so-called dehydrating agents, e. g., concentrated plasma, dextrose and sucrose, has at best a transitory effect in reducing brain volume and may be soon followed by a secondary stage of increased cerebral edema. The changes in blood volume associated with the injection of such agents is also undesirable.

Only the basal requirements for body water should be met, with an attempt to keep the urine specific gravity at about 1.025; this can be easily checked. When the basal water intake need cannot be met orally or by tube, then a 5 per cent to 10 per cent solution of dextrose in water may be given slowly intravenously. In the presence of coexisting hypertension the subcutaneous route is safer, but the concentration of dextrose must be reduced. Children over 10 years of age may be limited to 1,200 to 1,500 milliliters total intake daily (including the oral portion) during the critical first week or more of severe bulbar and respiratory poliomyelitis.

Milk and egg products given by tube early in the course of illness appear to augment mucus production in many, and milk may increase abdominal distension. Tube feeding of clear liquids may be given early. As long as there exists risk of tracheobronchial aspiration, an antibiotic with a broad antibacterial range should be used prophylactically. Atropine should be carefully avoided in bulbar poliomyelitis.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

CHRONIC OSTEOMYELITIS

TO THE EDITOR:—*Please send information on chemotherapeutic and antibiotic treatment of chronic osteomyelitis. My patient is a 30 year old woman, married, with one child. She sustained a compound fracture of the left femur 15 years ago and at six month intervals the skin over the injury breaks down and discharges a granule of bone or dirt. She has had bone curettements by an eminent surgeon.*

Philip J. Lukens, M.D., Ambler, Pa.

ANSWER.—In cases of chronic osteomyelitis, antibiotic treatment usually is not effective when used alone. In combination with surgical intervention, when indicated, it becomes very effective. In cases in which there are sequestra, where blind cavities are walled off, operation should be performed. Sequestra should be removed, and cavities should be filled with bone from the bone bank. With supplementary antibiotic therapy, many of these can be permanently healed.

SALICYLATE BLOOD LEVEL

TO THE EDITOR:—*After the ingestion of acetylsalicylic acid (aspirin) what quantitative salicylate blood level is required to produce substantial analgesia? What is the average intervening period of time required to produce substantial analgesia?*

M. A. Godgson, M.D., Memphis, Tenn.

ANSWER.—The administration of 0.65 Gm. of aspirin will result in a peak concentration of total salicylate in the blood of about 4 mg. per 100 cc. in 30 to 90 minutes. For about two hours a substantial amount of the total salicylate occurs as acetylsalicylate, but hydrolysis is fairly rapid. Since some workers (Lester, Lolli and Greenberg, *J. Pharmacol. & Exper. Therap.* **87**:329, 1946) believe the analgesic effect to be due to the unhydrolyzed acetylsalicylate, estimations of total salicylate blood concentrations are of doubtful value. Further, objective laboratory measurements of the effect on pain of small amounts of aspirin are not reliable (Gross and Greenberg, New Haven, The Salicylates, Hillhouse Press, 1948). A simple bedside method for the determination of plasma salicylate has recently been published (Miller and Whitehead, *Rocky Mountain M. J.* **46**:544, 1949).

ALLERGY IN AN INFANT

TO THE EDITOR:—*A baby is allergic to most cereal products (cerol,® pablum®) and many vegetables. Could you recommend some cereal product and/or baby food that might be hypoallergenic? The baby is 2 months old and is nursing.*

L. W. Berry, M.D., Chelan, Wash.

ANSWER.—The two cereal products to which this 2 month old infant is said to be allergic are both mixed cereals. Cerol® contains wheat, cornmeal, wheat germ and papaya as its chief constituents, while pablum® contains wheat meal, oatmeal, wheat germ, corn meal, alfalfa, dried yeast, salt and reduced iron. The wheat and wheat germ are common to both these cereals, and wheat has a reputation for causing a good deal of allergy in infants. It would be well to try single grain cereals for this infant, such as cornmeal, precooked or plain oatmeal, cream of rice or cream of barley. If the feeding of these cereals is begun slowly, one at a time, those which are hypoallergenic may be ascertained.

Vegetables may well be omitted until the infant is 3 or 4 months old. Spinach, tomato and vegetables of the cabbage family tend to be the most allergenic. Here again, single vegetables should be added slowly to the diet, so that those to which this infant might be sensitive could be detected. Soy bean is relatively hypoallergenic, and some products of this vegetable might be well tolerated by this infant.

LOSS OF TASTE AND SMELL

To the Editor:—*A patient lost her taste and smell after a head cold seven months ago. I tried many things, but nothing helped. Please advise as to therapy.*

Emil Glas, M.D., New York.

Answer.—Permanent loss of the sense of smell and the sense of taste is comparatively infrequent. Anosmia can be produced either by peripheral or central disturbances. The commoner respiratory form, which is sometimes accompanied by changes in the sense of taste of aromatic substances, occurs in acute rhinitis, acute and chronic rhinosinusitis, atrophic rhinitis, nasal allergy, nasal polyposis, chronic hypertrophic rhinitis, adenoid hypertrophy, with new growths, and, occasionally, as the result of the prolonged administration of nose drops containing tyrothricin. Partial anosmia for all scents may result from excessive smoking and the constant inhalation of irritating fumes. Anosmia due to cerebral tumors or cerebral syphilis follows the clinical course of these entities. Treatment should be directed toward the removal of the basic offending cause. Strychnine prescribed in full dosage is occasionally beneficial when other measures have failed.

NECROSPERMIA

To the Editor:—*In two cases of infertility the Huhner test showed dead sperm. In the condom specimen, there was 25 per cent motility, but the sperms were sluggish. Gram stain of the semen showed 95 per cent normal sperm, and the count was within normal limits. The history, physical examination, blood cell count, sedimentation rate, urinalysis and blood cholesterol in both patients were within normal limits. Can you help me on this?*

C. E. Rozgay, M.D., Oak Harbor, Wash.

Answer.—True necrospermia occurs rarely. In most cases in which such a diagnosis is made, spermatozoa that were alive when produced have been immobilized or killed by a hostile environment. Rubber condoms frequently have this effect, since some of the materials used in their manufacture are strongly spermatocidal. The normal acid vaginal moisture acts in the same way. Except at ovulation time the endocervical mucus is usually thick enough to entangle and immobilize the male cells. All these possibilities should be taken into account before a diagnosis of necrospermia is made. Treatment is relatively unsatisfactory. If the seminal fluid is abnormally viscous as a result of prostatovesicular congestion or infection, these conditions should be corrected. Other measures are largely empirical. The general health and hygiene of the patient should receive attention. Some benefit may be derived from the administration of thyroid in sufficient quantity to keep the basal metabolic rate around the + 10 level. While large doses of testosterone must be avoided because of their inhibiting effect on the pituitary, small doses, e. g., 5 mg. once a day by mouth, may improve the functions of the epididymides, vasa deferentia, prostate and seminal vesicles, with resultant improvement in motility of the spermatoza.

NECROBIOSIS LIPOIDICA

To the Editor:—*A 40 year old man, somewhat overweight, has had multiple varicose veins injections and ligations. He does not have diabetes, but he has necrobiosis lipoidica, proved by biopsy of the affected tissue. Is there anything available to improve it or at least arrest its progress?*

M.D., Massachusetts.

Answer.—This condition develops predominantly in diabetes, which should be ruled out by sugar tolerance tests; lipid values in the blood are often normal. Venous insufficiency aggravates the lesion as it does any other cutaneous defect, so that bandaging and bedrest are advisable. If the lesions appeared after injections of varicosities, the fat necrosis may be due to intravascular thrombi with retrograde spread or extravascular deposit of sclerosing material. If the defect is single, wide excision with suture or skin graft may be possible; otherwise, there is no effective treatment other than controlling elevated sugar and lipid values in the blood.

DIAGNOSIS OF MYOCARDIAL INFARCTION

To the Editor:—*I find the following statements in a recent textbook of medicine: The diagnosis of infarction (cardiac) should not be made in the absence of fever, leukocytosis, relative polynucleosis, relative increase in immature polynuclear cells or elevated sedimentation rate. A diagnosis should not be made on the basis of the electrocardiograph alone. Is this teaching in keeping with present day cardiology?*

Philip J. Dorety, M.D., East Orange, N. J.

Answer.—The diagnosis of recent myocardial infarction should not be based on the presence or absence of laboratory data alone but should depend mainly on the clinical evaluation of the patient and the history. Signs such as fever, leukocytosis and elevation of the sedimentation rate may be absent when an infarct involves only a small area of the myocardium and has rapid restitution. In such cases, also, electrocardiographic changes may be of short duration and can be missed if serial tracings are not obtained. The incidence of electrocardiographically "silent" myocardial infarcts, however, has decreased greatly since the introduction of multiple precordial leads and aV limb leads into routine electrocardiography.

ELECTROENCEPHALOGRAM AFTER TREATMENT FOR COMA

To the Editor:—*How long after a patient has had deep insulin coma treatments will the electroencephalogram be affected by this treatment? Please answer this question with respect to electric shock therapy, both of the grand mal type and brief electric shock treatment type.*

Jules Magnette, M.D., Kaneohe, Oahu, Hawaii.

Answer.—There have been few adequate electroencephalographic studies made after patients have had deep insulin coma treatment. There is some evidence that, when the patient is mentally clear, the electroencephalogram is then normal. This may be during the afternoon of the day on which the patient received insulin. When clinical recovery is prolonged, the electroencephalogram continues to show abnormality during the recovery period. For safety, the electroencephalogram should be postponed until 48 hours after clinical recovery. In reference to electric shock therapy, most patients return to normal in two to four weeks, but a waiting period of eight weeks is recommended.

"BELLY BANDS" FOR INFANTS

To the Editor:—*What procedure is accepted on the use of abdominal binders in newborn infants? For how long a period after birth are they used? Is there any accepted routine preferable for the care of the umbilicus in the newborn?*

Robert J. Ralston, M.D., Holyoke, Colo.

Answer.—Abdominal binders, or the old-fashioned "belly-bands," are no longer in general use for the newborn infant. No covering is necessary for the umbilical stump. When it separates, a raw granulomatous area may discharge until a scab forms and the area heals, and during this period the umbilicus may be covered by a sterile gauze square, which can easily be kept in place by the diaper.

Sponge baths are usually given the newborn infant until the umbilicus is completely healed. After the sponge bath the healing umbilical area may be touched with 70 per cent alcohol on a sterile toothpick cotton swab. After the skin has covered the umbilicus the baby may receive a tub bath, and soap and water may be used to clean this area as other portions of the skin.

MAGNESIUM SULFATE AND BREAST MILK

To the Editor:—*I am interested in the effect of magnesium sulfate, when ingested by the mother, on the breast-fed baby.*

Kathryn A. Rainbow, M.D., Washington, D. C.

Answer.—Magnesium sulfate ingested orally in the usual doses is poorly absorbed from the gastrointestinal tract. Should any excess be absorbed, normal functioning kidneys rapidly excrete magnesium ion. Therefore, there would be little opportunity for ingested magnesium sulfate to appear in milk in sufficient quantities to affect the breast-fed infant.

MORPHINE BY MOUTH

To the Editor:—*How effective are oral morphine and codeine compared to the same dose of the drugs used subcutaneously? Can commercial morphine sulfate solutions be used intravenously? The preparation of morphine sulfate I use contains 0.5 per cent chlorobutanol and 0.1 per cent sodium bisulfite.*

M.D., California.

Answer.—Orally administered morphine and codeine are about two-thirds to half as effective as a similar dose of the drug given subcutaneously. Maximum analgesic effect develops 60 to 90 minutes after subcutaneous injection, and both the degree and duration of effect are longer than with oral administration.

In emergencies morphine sulfate may be administered intravenously, the maximum analgesic effect developing in 20 to 40 minutes, but the degree of analgesia attained and the duration of effect are both less than with subcutaneous administration. The combination of chlorobutanol and sodium bisulfite as preservatives and stabilizers does not interfere with the administration of morphine intravenously.

ALBINISM

To the Editor:—*An officer's first child is a partial albino. An ophthalmologist has reported pigment in the retina, and the child tans slightly during the summer. The family history discloses no other cases on either side of the family. On the paternal side, history can be traced to the child's great great-grandfather and on the maternal side to the child's great-grandmother. The officer and his wife are anxious to have other children but are afraid they, too, may be albinos. What are the chances that future children will be albinos?*

J. H. Watson, M.D.,
Chilliwack, British Columbia, Canada.

Answer.—Albinism is reported as appearing once in every 30,000 births in Italy, once in 20,000 births in Norway, and once in 24,000 births in Scotland. The condition usually is recessive. It affects males somewhat more frequently than females, and it is stated that about 20 per cent of the parents of albinos are cousins. There are a good number of pedigrees of families on record having more than one albino member. In the case cited above, there is a chance that a sibling may also be an albino. This chance is greater than it would be in the population at large and would be increased if the parents or grandparents were blood relatives of each other. In view of the fact, however, that albinism did not appear in either the parental or grand-parental generation, the couple in question might be advised to have another child, with the knowledge that they do take a certain slight risk in doing so. Unrestricted reproduction, undoubtedly, would result in the birth of more normal children than albinos, possibly in the relation of 8 to 1. However, if the next child is normal, it might be well for the parents to limit their family at that point.

FOUL STOOLS IN YOUNG CHILD

To the Editor:—*What is the treatment for mucous colitis in infants? The case in question is that of a 2 year old boy, who has had incontinent, mucous, foul stools since 9 months of age. He has no fever and feels well. His appetite is good; he sleeps well and seems perfect in every other way. Stool smears show no amebas or cysts. Stained smears show only an occasional eosinophil. Culture did not produce any growth. Complete blood count is as follows: hemoglobin, 12.2 Gm.; white blood cells, 8,000; polymorphonuclear cells, 29; lymphocytes, 67; monocytes, 3, and basophils, 1.*

Charles Lewis Concklin, M.D., Corpus Christi, Texas.

Answer.—Before the diagnosis of "mucous colitis" is fully established in this case, other causes for the type of stool described must be excluded. The stool should be examined quantitatively for fat to exclude celiac disease (nontropical sprue) or fibrocystic disease of the pancreas. The presence of pancreatic enzymes in the duodenal aspiration will further differentiate the latter two diseases.

A careful proctoscopic examination is indicated to examine the surface of the rectal mucosa and a swab of the anal orifice, especially at night, to exclude the presence of oxyuriasis. The foul-smelling mucus may be indicative of a bacterial infection. The two organisms that would be frequently associated with mucus are members of the pyocyanase group. They cause foul-smelling, watery stools and grow rather luxuriantly on ordinary laboratory culture mediums. The presence of incontinence calls for a careful neurological examination to exclude involvement of the spinal cord or higher brain centers. Finally, a roentgenologic study of the entire gastrointestinal tract is indicated, noting small bowel motility, and particular attention should be directed at the terminal ileum and colon. Treatment will depend on the findings of the above examinations. If results of all of the above tests are negative, therapy with a low residue diet, mild sedatives and parasympatholytic agents like atropine or banthine® (beta-dimethylaminoethyl xanthene-9-carboxylate), or similar drugs, may be indicated.

FOLIC ACID AND PERNICIOUS ANEMIA

To the Editor:—*Does folic acid administered by muscle or by mouth predispose to cord damage in pernicious anemia? If folic acid and vitamin B_{12} are given together per os, is this danger averted? Would it be advisable to administer folic acid and vitamin B_{12} per os in patients with large subtotal gastrectomy in order to prevent development of pernicious anemia?*

M.D., Pennsylvania.

Answer.—Folic acid whether administered orally or intramuscularly fails to protect against the development of cord damage and may predispose to the development of that condition in pernicious anemia. If vitamin B_{12} is administered orally in large enough doses it will protect against this complication, but it is much more effective given intramuscularly. Neither folic acid nor vitamin B_{12} should be administered routinely in patients with large subtotal gastrectomy. It would seem better practice for one to perform blood studies at suitable intervals to see whether a hyperchromic anemia was developing before instituting treatment.

TOXIC NEURITIS DURING PREGNANCY

To the Editor:—*Are there any contraindications for the use of cortisone or dimercaprol for a case of toxic neuritis in a patient who is five months pregnant? She has had relief from adrenal cortex extract given parentally on alternate days, but no relief from calcium or vitamin B complex. Nicotinic acid in 50-100 mg. doses relieves the pain and difficulty in walking but produces the side effect of severe headaches.*

M. Louise Benefield, M.D., Long Beach, Calif.

Answer.—Cortisone should not be used during pregnancy, because the action of this substance is unpredictable and it may be dangerous for the baby. On the other hand, dimercaprol may be used during pregnancy with safety. Cortisone should certainly be used with the same caution in pregnant as in nonpregnant patients.

TREATMENT OF LUPUS

To the Editor:—*In Europe the trend in treatment of lupus is to give doses of 600,000 I. U. of vitamins at short intervals at the start and later at longer intervals during several months. This is called the Charpy method. The patients have to be watched carefully, because heavy damage might develop. The results are satisfactory in many instances. What is the treatment of lupus in the United States?*

M.D., Spain.

Answer.—The tendency among dermatologists in this country apparently is to use combined treatment, employing both calciferol and dihydrostreptomycin. With this method therapeutic results seemingly are better and quicker and the dosages of both drugs may be lowered. Calciferol usually is administered in doses of 150,000 units daily and dihydrostreptomycin 1 Gm. daily, or both for a limited time with careful observation for untoward reactions.

TREATMENT OF ACNE

To the Editor:—*Please give the treatment for facial acne in the adolescent girl.*

J. Will Tankard, M.D., Newport News, Va.

Answer.—The treatment of acne must be individualized in each case. Much depends on the extent, number and depth of the lesions, the degree of pyodermic involvement, constitutional makeup and the emotional impact of the acne both on the patient and the parents. Certain principles of treatment may be outlined. These should aim at lessening the activity of the sebaceous apparatus, eliminating secondary infection and cosmetic improvement. In general, if the papules are superficial, small and not too disfiguring, satisfactory results can be obtained by the application at night of a mildly exfoliating lotion, such as lotio alba, the use of a nonirritating soap twice daily and some simple dietary restrictions. The patient should restrict the eating of seafoods because of their iodine content; foods rich in fats, such as chocolate, creamed dishes, nuts, fat meats and gravy, and foods that produce flushing of the skin, such as hot dishes, spices and alcohol. If the acne flares at the time of the menses, small doses of estrogenic substances for 10 days prior to the onset of menses often overcome this tendency. Factors such as constipation, hypothyroid activity and anemia should be corrected, and dandruff should be eradicated. Comedos should be expressed by the physician with a proper instrument. If comedos continue to form so rapidly as to constitute a cosmetic defect, vitamin A may be administered, although its efficacy is questioned by many physicians. If the condition fails to improve with these measures, or if it gets worse and the lesions become deep seated or cystic, the patient then may require measures such as cryotherapy, x-ray or solar therapy, treatment with antibiotics or more vigorous endocrine treatment. Such measures, which can cause considerable harm if mismanaged, are a matter for a qualified dermatologist. It should be emphasized, too, that treatment always accomplishes some good. To advise a patient against treatment and to wait for maturity is to practice "horse and buggy" medicine. Unfortunately treatment often has to be prolonged and good results sometimes are slow to develop, but that is true of so many diseases that result from disturbed physiological function. The end result, from both the cosmetic and the psychological standpoint, usually warrants the effort expended.

NEURODERMATITIS

To the Editor:—*A patient with neurodermatitis shows considerable improvement premenstrually, no matter what is being done. Just after the menses, the dermatitis lapses back into its irritable form until just before the next menses. Is there any endocrine therapy that might be of value?*

Clifford H. Kalb, M.D., Milwaukee.

Answer.—During the premenstrual period, the level of progesterone in the blood stream is high. Since the dermatitis in this case improves at that time, it might be well to administer progesterone in an attempt to maintain an elevated progesterone level. The dosage must be determined for each case.

ANDROGENS AND PROSTATIC CANCER

To the Editor:—*Does testosterone initiate or activate latent cancer? I have found that testosterone helps quiet the patient's nerves and in some cases has a beneficial effect on the sex function. Are the larger doses, such as 25 or 50 mg., deleterious? Do natural estrogens have advantages over synthetic estrogen in the treatment of carcinoma of the prostate?*

M.D., Washington, D. C.

Answer.—It has not been proved that androgens initiate cancer of the prostate, although this neoplasm does not occur in men castrated at an early age. However, it is well established that androgens, including testosterone propionate, stimulate the growth of prostatic carcinoma (Huggins, C., and Hodges, C. V.: *Cancer Research* **1**:293, 1941). The prostate should be examined at frequent intervals in elderly males treated with androgen. There is no evidence that natural estrogens possess therapeutic properties not present in synthetic estrogens.

DEFLUVIUM

To the Editor:—*A 38 year old woman underwent a thyroidectomy July 5, 1950, for toxic hyperthyroidism. About one month later, the patient developed slowly progressive alopecia. Is this condition known to follow thyroidectomy?*

Louis S. Riccardi, M.D., Marlborough, Mass.

Answer.—Defluvium does develop occasionally after conditions such as infections, toxic states or surgical procedures in which general anesthetics have been employed. In such cases the condition is temporary and the hairs regrow in time. There is a remote possibility, too, that the alopecia in this case may be due to postoperative hypothyroidism.

STRABISMUS IN YOUNG INFANTS

To the Editor:—*In Queries and Minor Notes* (J. A. M. A. **145**:*191* [*Jan. 20*] *1951*) *the statement is made that "operation may be necessary to correct severe true squint: this is usually not undertaken until the child is 4 or 5 years old." For many years matriculates in our eye muscle courses at the New York University Post-Graduate Medical School have heard the late Dr. James W. White, Dr. Aebli, Dr. Brown and me decry the tendency to delay surgery in infants and young children afflicted with high degrees of strabismus. Most mothers bring their children to the ophthalmologist for guidance early in infancy. Here we have a rare medical instance where treatment is sought months before it can be instituted. After the eighteenth month the etiology of strabismus can be accurately diagnosed and medical methods introduced for its correction. The therapeutic measures that may be employed are (1) correction of high degrees of hypermetropia with eyeglasses, (2) occlusion of the fixing eye and (3) atropinization of the fixing eye to encourage visual function in the squinting eye. If these measures fail to decrease a unilateral convergent strabismus of high degree, surgery should be considered after the age of 2 years. Operations when the child is 4 or 5 years old may correct the cosmetic deformity but often fail to overcome amblyopia. An eye cannot squint for years and maintain perfect vision. I have examined many children with unilateral strabismus whose eyesight was permanently damaged by the time they had reached the age of 3 years. For these reasons I have stressed that the right time to operate is as soon as a decision is reached that medical means have proved ineffective (Smith, J. W.: The Problem of Strabismus in Childhood,* Am. J. Ophth. **31**:*85* [*Jan.*] *1948). The best chance for restoration of binocular single vision with minimal surgery is between the ages of 2 and 4 years. Procrastination invites secondary contractures in other muscles and provokes additional operations. If surgery fails to effect parallelism, orthoptic training can be utilized to achieve fusion of vision when the child is sufficiently old to cooperate.*

James W. Smith, M.D.,
Clinical Professor of Ophthalmology,
New York University Post-Graduate Medical School.

FEBRILE RELAPSING NONSUPPURATIVE PANNICULITIS

To the Editor:—*The answer to the query on relapsing febrile—or febrile relapsing—(nodular) nonsuppurative panniculitis, in* The Journal, *Jan. 27, 1951, page 276, ignores the fact that in roughly 2 per cent of reported cases of this disease (namely, one case reported by me in the* Archives of Dermatology and Syphilology, *February 1945) response to sulfapyridine was good, with complete recovery after about a year of intermittent treatment with this drug. So far as I know, no failure with sulfapyridine has as yet been reported in this disease. The patient reported is still well, and there have been no recurrences since about September 1944.*

Harry L. Arnold Jr., M.D., Honolulu, Hawaii.